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INDEX TO TITLES AND AUTHORS
Volume 116—January to June, 1948

Abbreviations: (Ed.) Editorial; (N) News

	Month	Page
Adams Five-Year Vocational Guidance Plan at Phoenix, (N)	June	73
Adapting Administrative Organization to Changed Conditions, (Ed.)	February	52
Adequate School Grounds, Carroll D. Bush	February	64
Administrative Organization in San Anselmo, California, (N)	April	40
Adult Recreation Program Is Good Public Relations, An, J. I. King	May	32
ALLEN, FRANK E.—To Build or Not to Build?	April	22
ALLPHIN, WILLARD—School Lighting Standards: A Comment	March	72
AASA at Atlantic City	March	56
ANDERSON, EINAR J.—How an Illinois School Promoted and Financed Adult Evening School Program	February	35
And Still, Salary by Merit Rating Is Wrong, Earl Hanson	June	30
Anticipatory School Site Selection and Purchase, N. L. Engelhardt	January	33
Appraising the Performance of Public Employees, (N)	March	64
Apprenticeship and Newer Trades, (Ed.)	May	50
Are We Going Too Far? (Ed.)	March	52
Arizona Provides State Support for Schools, (N)	February	91
Bakersfield Adopts Specific School Objectives, (N)	February	62
Balanced School Buildings, (Ed.)	February	53
Basic Principles of School Building Design, Don L. Essex	January	19
Basic School Planning Procedure, Charles D. Gibson	May	40
Battle Creek Citizens Unite for Additional School Tax, Eva N. Palmer	May	31
Battle Creek Salary Schedule, (N)	May	78
Birmingham Administrative Council, (N)	April	63
BLISS, SIDNEY M.—Choosing a Superintendent of Schools	March	29
Board Adopts and Prints Its Policies, A, W. R. Godwin	March	22
Board Member Looks at the Teachers, A	May	54
Boston Selects a Superintendent	March	48
BRACKEN, JOHN L.—A Superintendent Takes a Squint at the Future	April	27
BROWNING, CLYDE—Galva Mothers Visit First Grade	February	54
Building an Audio-Visual Program in Michigan City, (N)	February	58
Building Schools When Costs Are High, N. L. Engelhardt	April	39
BURGERT, ROBERT H.—San Diego Schools Achieve Equipment Goal	March	51
BURGESS, S. H.—The Use of Lightweight Steel Joist Floor Construction for School Buildings	January	51
BURKE, ARVID J.—New State Minimum Salary Schedules and Their Financing	February	29
BUSH, CARROLL D.—Adequate School Grounds	February	64
CAMPAGNA, ANTHONY—Schools Can Be Built Despite High Costs	May	45
Can Superior Merit Be Rewarded? (Ed.)	February	52
Can Your School and Community Attract and Hold the Best Teachers?, Robert B. Norris	February	31
Can You Top This? Agnes Hansen	March	44
Carlsbad Board Adopts Improved Personnel Policies, (N)	June	78
Carlsbad Personnel Plan, (N)	April	64
Changing Classroom, The, Samuel G. Wiener	January	21
Changing Nature of Teacher Shortage, Benjamin W. Frazier	June	19
Chart for Adult Education, Wilmot F. Collins	May	20
Check List for Superintendents, Thomas R. Cole and Alice H. Hayden	March	20
Chicago School Building Program for 1948, Thomas J. Higgins	February	54
Chicago's 12-Year School	January	47
Choosing a Superintendent of Schools, Sidney M. Bliss	March	29
CLARK, M. R.—The Dubuque Adult-Educatin Plan	April	35
Classroom for Primary Schools, J. Chester Swanson and Fred W. Hosler	January	55
Classroom Remodeled According to Harmon Technique, (N)	May	60
Clerk in Rural Ohio School Districts, The, John E. Gee	June	22
Clerk of the Board of Education of City School District of Ohio, The, John E. Gee	May	21
Cleveland Offers Involuntary Leaves of Absence for Incapacitated Teachers, (N)	June	68
Clinton Salary Schedule, (N)	May	78
COLE, THOMAS R.—Check List for Superintendents	March	20
COLLINS, WILMOT F.—A Chart for Adult Education	May	20
Color Planning for School Interiors, M. Pleason	January	29
CONRAD, JOHN W.—Modernization of School Buildings in Keokuk, Iowa	March	47
Convocation Film Program That Works, W. C. Meierhenry and Irene Sigler	March	46
Council Bluffs Elementary School, Council Bluffs, Iowa	June	41
Creeping Paralysis in School Buildings, Harlan L. Hagman	March	33
Critical Survey of Vocational School Admission Standards, George S. Sanders and Benjamin J. Novak	June	32
Custodial Personnel Administration, John E. Phay	March	21
Custodial Personnel Administration, John E. Phay	April	33
Custodial Personnel Administration, John E. Phay	May	25
Custodial Personnel Administration, John E. Phay	June	24
DARLEY, WILLIAM G.—Odyssey Toward Quality (II)	January	31
Deep River Vocational School Program, (N)	June	73
Deming Travel Credit Provision, (N)	February	78
Development of a Natural Daylighting System for Modern School Buildings, Ernest J. Kump	June	35
Douglass Elementary School for Negroes, Webster Groves, Mo.	March	39
Dubuque Adult-Education Plan, M. R. Clark	April	35
Dubuque Salary Schedule, (N)	May	77
DUGAT, JEAN—Housing the Cafeteria for Better Service	June	38
Dynamic In-Service Training Program for Teachers, (N)	April	40
EARLE, LEWIS—So You Want to Be a Superintendent?	May	29
Economic Aspects of School Cost Increases, (Ed.)	March	52
Education for Democracy, James R. Newman	February	56
Education's Part in Developing Devotion to Democracy, Elaine Exton	May	48
Educators in Convention Assembled, W. C. McGinnis	May	28
Edwardsville Salary Schedule, (N)	January	60
ENGELHARDT, N. L.—Anticipatory School Site Selection and Purchase	January	33
ENGELHARDT, N. L.—Building Schools When Costs Are High	April	39
Equal Educational Services, (Ed.)	February	53
ESSEX, DON L.—Basic Principles of School Building Design	January	19
EXTON, ELAINE—Education's Part in Developing Devotion to Democracy	May	48
EXTON, ELAINE—Health of School-Age Children	June	51
EXTON, ELAINE—Word From Washington	February	49
EXTON, ELAINE—Word From Washington	March	53
EXTON, ELAINE—Word From Washington	April	53
Federal Aid to Schoolhouse Planning, Harry Hewes	February	43
Fixing the Salary of the Superintendent, Otto W. Haisley	May	33
Flying Classroom Study of Business and Industry, The	March	48
FRAZIER, BENJAMIN W.—Changing Nature of the Teacher Shortage	June	19
Functions and Organization of the British Ministry of Education, Sir John Maud	February	21
Galva Mothers Visit First Grade, Clyde Browning	February	54
GEE, JOHN E.—The Clerk of the Board of Education of City School District of Ohio	May	21
GEE, JOHN E.—The Clerk in Rural Ohio School Districts	June	22
GIBSON, CHARLES D.—Basic School Planning Procedures	May	40
GLOOR, ANNA M.—High School Records Can Be Photographed	June	68
Gloucester Abolishes Course Labels in High School, (N)	June	74
GODWIN, W. R.—A Board Adopts and Prints Its Policies	March	22
GOEN, MAMIE—Housing the Cafeteria for Better Service	June	38
Goslin Quits, (Ed.)	May	50
Grand Rapids Salary Schedule, (N)	June	62
Greater Dispersion in the Range of Teachers' Salaries, Otis E. Young	April	32
Greencastle Centralizes Its School Lunches, Terrence A. Kleckner	April	26
GREGG, RUSSELL T.—Steps in Planning School Building Programs	February	23
GRIFFITH, JOHN H.—The Importance of the Field Trip in Teaching Soil Conservation in Galesburg	February	62
Guidance, Visual Aids, and Public Relations Combine to Create Colorful Commencement, Herbert H. Helble	February	26
GUILFOYLE, JAMES H.—The Worcester School Committee and the Admiral	June	26
Gymnasiums for Elementary Schools, W. K. Streit	June	43

Education (Stacks)
Wafer
L
11
.A56

	Month	Page
HAGMAN, HARLAN L. — Creeping Paralysis in School Buildings	March	33
HAGMAN, HARLAN L. — The School Board Presidency	April	23
HAISLEY, OTTO W. — Fixing the Salary of the Superintendent	May	33
HANSEN, AGNES — Can You Top This?	March	44
HANSON, EARL — And Still, Salary by Merit Rating Is Wrong	June	30
HANSON, EARL — Salary by Merit Rating Is Wrong	March	25
Harvard Noon-Hour Program, (N)	February	92
HAWKES, FRANKLIN P. — In-Service Training in West Springfield, Mass.	June	48
HAYDEN, ALICE H. — Check List for Superintendents	March	20
Health of School-Age Children, The, Elaine Exton	June	51
HEDLUND, PAUL A. — Measuring Public Opinion on School Issues	April	29
HELBLE, HERBERT H. — Guidance, Visual Aids, and Public Relations Combine to Create Colorful Commencement	February	26
HEWES, HARRY — Federal Aid to Schoolhouse Planning	February	43
HIGGINS, THOMAS J. — Chicago School Building Program for 1948	February	54
High School Has Yet to Reach Its Full Stature, Harold Spears	March	17
High School Records Can Be Photographed, Anna M. Gloor	June	68
HILL, O. E. — Salary and Sickleave Plan — Upper Arlington Schools	May	52
Hold School Lighting Conference in Mansfield, (N)	June	59
Hold School Lighting Institute in St. Petersburg	June	46
HOSLER, FRED W. — A Classroom for Primary Schools	January	55
Housing the Cafeteria for Better Service, Mamie Goen and Jean Dugat	June	38
How an Illinois School Promoted and Financed Adult Evening School Program, Einar J. Anderson	February	35
How One Visiting Teacher Meets the Needs of Handicapped Children, W. Edward Young	March	44
Hurdles in Religion for the American School Board, Herbert B. Mulford	April	37
Importance of Field Trip in Teaching Soil Conservation in Galesburg, John H. Griffith	February	62
Improved Working Conditions for Teachers, Kenneth A. Woolf	March	45
In-Service Teaching Growth at Camp, Emery Stoops	March	28
In-Service Training in West Springfield, Mass., Franklin P. Hawkes	June	48
Is the Use of Germicidal Aerosols Feasible in Schools? Paul W. Seagers	January	58
Job for Future School Boards, A	March	64
JOHNS, R. L. — The Provision for Capital Outlay in the State's Foundation Program of Education	March	24
Kind of Information Needed for a Survey of School Building Needs, Frederick M. Raubinger	January	24
KING, J. I. — An Adult Recreation Program Is Good Public Relations	May	32
KIRK, H. H. — The Meetings and Committees of School Boards	February	19
KLECKNER, TERRENCE A. — Greencastle Centralizes Its School Lunches	April	26
KUBIK, EDMUND J. — A Promotion and Grouping Policy for the Elementary School	February	37
KUMP, ERNEST J. — Development of a Natural Daylighting System for Modern School Buildings	June	35
Lag in Social Institutions, The, (Ed.)	May	51
LaGrange Salary Policy Committee, (N)	February	78
LaPorte Special Programs for Children Learning to Read, (N)	April	63
Leadville Salary Schedule, (N)	April	76
Lincoln Sickleave Plan, (N)	June	68
LINN, H. H. — Our Billion Dollar Babies	June	23
LITTLER, ROBERT — Parable of the Talents	June	29
Locating Schools in Public Parks, (N)	January	68
Louisiana School Boards Discuss Higher Salaries, (N)	May	72
Madison School, Everett, Wash.	May	36
Making the Community Aware of the School Program, (N)	January	72
Manistee Streamlines Administrative Business, (N)	February	80
MAUD, SIR JOHN — Functions and Organization of the British Ministry of Education	February	21
Mayfield Develops Memorial Recreation Center	March	27
Mayfield Salary Schedule, (N)	April	76
McGINNIS, W. C. — Educators in Convention Assembled	May	28
McLEARY, RALPH D. — The Professional Improvement Salary Schedule	February	27
Measuring Public Opinion on School Issues, Paul A. Hedlund	April	29
Meeting the Needs of School Rehabilitation in Face of Rising Costs, Clyde Parker	April	46
Meetings and Committees of School Boards, H. H. Kirk	February	19
MEIERHENRY, W. C. — A Convocation Film Program That Works	March	46
Melrose Elementary School, Miami, Fla.	April	41
Misconceptions of Public Relations, Maurice G. Postley	May	19
Missouri State Rating System for Accredited Schools, (N)	June	73
Modernization of School Buildings in Keokuk, Iowa, John W. Conrad	March	47
MORPHET, EDGAR L. — The Provision for Capital Outlay in the State's Foundation Program of Education	March	24
MOSHER, FRANK K. — School Board Members Discuss Their Duties at PTA Meeting	March	49
MULFORD, HERBERT B. — Hurdles in Religion for the American School Board	April	37
MULFORD, HERBERT B. — School District Consolidation Progresses in Illinois	February	82
My Fee is $10	March	32
National School Boards Association Holds Convention	March	61
NESBITT, ALBERT J. — A Refinement in Air Stream Control	June	45
Neville Home Economics Room, Neville Township, Allegheny County, Pa.	April	48
New Board at Port Neches, Tex., (N)	June	65
NEWMAN, JAMES R. — Education for Democracy	February	56
New State Minimum Salary Schedules and Their Financing, Arvid J. Burke	February	29
New Type Classrooms Feature Northwest Schools	May	38
New York City Board Completes 1947 Building Program, Mark Price	February	48
New York City Board Membership Raised, (N)	May	62
NORRIS, ROBERT B. — Can Your School and Community Attract and Hold the Best Teachers?	February	31
Norris Street Elementary School, Philadelphia, Pa.	March	35
NOVAK, BENJAMIN J. — A Critical Survey of Vocational School Admission Standards	June	32
O'BRIEN, GEORGE M. — Teachers Honored for Quarter Century of Service	June	49
Odessa Senior High School, Odessa, Tex.	April	45
Odyssey Toward Quality (II), William G. Darley	January	31
Orchard School, Lewiston, Idaho	January	44
Organizing and Operating a Vocational Building Trades Program, K. B. Wilson and Delbert L. Young	May	23
Our Billion Dollar Babies, H. H. Linn	June	23
PALMER, EVA N. — Battle Creek Citizens Unite for Additional School Tax	May	31
Panic in Places of Assembly, Fred Wells	January	40
Parable of the Talents, Robert Littler	June	29
PARKER, CLYDE — Meeting Needs of School Rehabilitation in Face of Rising Costs	April	46
Passing of Carroll G. Pearse, The, (Ed.)	June	51
Passing of Nicholas Murray Butler, (Ed.)	January	54
PEASE, J. E. — A Promotion and Grouping Policy for the Elementary School	February	37
Pennsylvania School Directors Discuss Financial Aid to Schools, (N)	March	66
PHAY, JOHN E. — Custodial Personnel Administration	March	21
PHAY, JOHN E. — Custodial Personnel Administration	April	33
PHAY, JOHN E. — Custodial Personnel Administration	May	25
PHAY, JOHN E. — Custodial Personnel Administration	June	24
PITTENGER, B. F. — Principles Underlying Centralized Plan of School Administrative Organization	April	19
PITTENGER, B. F. — Two Interpretations of Democratic School Administration	May	17
PITTENGER, B. F. — Two Interpretations of Democratic School Administration, (II)	June	17
Plan and Equipment Standards for Orthopedic Units, C. H. Woodruff	January	28
PLEASON, M. — Color Planning for School Interiors	January	29
POSTLEY, MAURICE G. — Misconceptions of Public Relations	May	19
PRICE, MARK — New York City Board Completes 1947 Building Program	February	48
PRINCE, TOM C. — Public School Pools	January	41
Principles Underlying Centralized Plan of School Administrative Organization, B. F. Pittenger	April	19
Problem Teachers, (Ed.)	June	50
Professional Improvement Salary Schedule, Alfred D. Simpson and Ralph D. McLeary	February	27
Promotion and Grouping Policy for the Elementary School, Edmund J. Kubik and J. E. Pease	February	37
Provision for Capital Outlay in the State's Foundation Program of Education, R. L. Johns and Edgar L. Morphet	March	24
Public School Pools, Tom C. Prince	January	41

	Month	Page
RAINES, EARL L. — Reimbursement for Privately Owned Cars Used on School Business	February	32
RAUBINGER, FREDERICK M. — The Kind of Information Needed for a Survey of School Building Needs	January	24
Refinement in Air Stream Control, A, Albert J. Nesbitt	June	45
Reidville Grammar and High School, Reidville, S. C.	May	43
Reimbursement for Privately Owned Cars Used in School Business, Earl L. Raines	February	32
Relations of the School Board to the School Personnel	March	32
Religion Case, The, (Ed.)	April	53
Rhawnhurst Elementary School, Philadelphia, Pa.	March	37
Riverside Converts Army Buildings Into School Housing, Harry K. Young	January	42
Riverside High School Stadium, Riverside, Ill.	February	39
Rock Asphalt Ends Playground Troubles	April	36
ROTHWELL, ANGUS B. — Superior Auditorium Replaces the Old and Inadequate	February	46
Sac City's Adult-Education Program	February	54
Salary and Sickleave Plan — Upper Arlington Schools, O. E. Hill	May	52
Salary by Merit Rating Is Wrong, Earl H. Hanson	March	25
SANDERS, GEORGE S. — A Critical Survey of Vocational School Admission Standards	June	32
San Diego Schools Achieve Equipment Goal, Robert H. Burgert	March	51
School-Age Population Gain, (N)	May	72
School Architect, Old and New, The, (Ed.)	May	50
School Board Members Discuss Their Duties at PTA Meeting, Frank K. Mosher	March	49
School Board Membership and Self-Interest, (Ed.)	March	52
School Board Presidency, The, Harlan L. Hagman	April	23
School Building Construction in 1948, (Ed.)	January	54
School Building Needs, George H. Field	May	44
School District Consolidation Progresses in Illinois, Herbert B. Mulford	February	82
School Lighting Conference in Mansfield, (N)	May	61
School Lighting Standards, Willard Allphin: A Comment	March	72
School Needs Presented to Board of Battle Creek, (N)	January	72
School Plant Planning and School Safety, N. E. Viles	February	41
School Progress in Houston, (N)	January	74
School Rules, (Ed.)	April	52
School Taxes in Chicago Suburbs Rise, (N)	June	64
Schools and Local Business, (Ed.)	March	53
Schools Can Be Built Despite High Costs, Anthony Campagna	May	45
Schools, a Local Responsibility, The, (Ed.)	May	51
SEAGERS, PAUL W. — Is the Use of Germicidal Aersols Feasible in Schools?	January	58
Serial Numbers for New Babies, (N)	May	74
Sheboygan Salary Schedule, (N)	February	77
Shelbyville Salary Schedule, (N)	January	60
SIGLER, Irene — A Convocation Film Program That Works	March	46
SIMPSON, ALFRED D. — The Professional Improvement Salary Schedule	February	27
SMALLEY, DAVE E. — Spring Renovation of School Floors	April	70
SMALLEY, DAVE E. — Vacuum Cleaners for Schools	May	46
Southeast Side School, Manneheim, Cook Co., Illinois	January	49
So You Want to Be a Superintendent? Lewin Earle	May	29
SPEARS, HAROLD — The High School Has Yet to Reach Its Full Stature	March	17
Spring Renovation of School Floors, Dave E. Smalley	April	70
Spring Valley Salary Schedule, (N)	May	78
Steps in Planning School Building Programs, Russell T. Gregg	February	23
STOOPS, EMERY — In-Service Teaching Growth at Camp	March	28
STREIT, W. K. — Gymnasiums for Elementary Schools	June	43
Superintendency in 1948, (Ed.)	April	52
Superintendent Takes a Squint at the Future, A, John L. Bracken	April	27
Superior Auditorium Replaces the Old and Inadequate, Angus B. Rothwell	February	46
Supervisory Group in the High School, (N)	January	68
SWANSON, J. CHESTER — A Classroom for Primary Schools	January	55
Teachers as Jurors, (Ed.)	April	53
Teachers Honored for Quarter Century of Service, George M. O'Brien	June	49
Teachers' Salaries in 1948, (Ed.)	June	50
Teaching Foreign Languages, (Ed.)	April	52
Three Counties Adopt Unification Program, (N)	June	62
To Build or Not to Build? Frank E. Allen	April	22
Training School for Board Members in Woodbury, Conn., (N)	May	68
Tulsa Board Solving Growth Problems, (N)	February	92
Two Interpretations of Democratic School Administration, B. F. Pittenger	May	17
Two Interpretations of Democratic School Administration (Part II), B. F. Pittenger	June	17
Unification Needed, (Ed.)	May	50
Use of Lightweight Steel Joist Floor Construction for School Buildings, S. H. Burgess	January	51
Using Local Personnel for Building Programs, (Ed.)	June	50
Vacuum Cleaners for Schools, Dave E. Smalley	May	46
VILES, N. E. — School Plant Planning and School Safety	February	41
Village Colleges of Cambridgeshire, David N. Yorkes	January	35
Virginia Accreditation Policy for High Schools, (N)	June	73
Vocational Guidance Clinic at Virginia, (N)	April	64
Waltham Salary Schedule, (N)	February	78
Warns Against False Economies in School Planning and Maintenance, (N)	June	64
Wausau Salary Schedule, (N)	May	77
Webster School, Lewiston, Idaho	January	46
WELLS, FRED — Panic in Places of Assembly	January	40
Whitman School, Lewiston, Idaho	January	45
WIENER, SAMUEL G. — The Changing Classroom	January	21
WILSON, K. B. — Organizing and Operating a Vocational Building Trades Program	May	23
Wisconsin Rapids Salary Schedule, (N)	February	77
Wisconsin School Boards Discuss School Betterment, (N)	May	72
WOODRUFF, C. H. — Plan and Equipment Standards for Orthopedic Units	January	28
WOOLF, KENNETH A. — Improved Working Conditions for Teachers	March	45
Worcester School Committee and the Admiral, James H. Guilfoyle	June	26
Word From Washington, Elaine Exton	February	49
Word From Washington, Elaine Exton	March	53
Word From Washington, Elaine Exton	April	53
Work Experience vs. Advanced Degrees, (Ed.)	June	50
YORKES, DAVID N. — The Village Colleges of Cambridgeshire	January	35
YOUNG, DELBERT L. — Organizing and Operating a Vocational Building Trades School	May	23
YOUNG, HARRY K. — Riverside Converts Army Buildings Into School Housing	January	42
YOUNG, OTIS E. — Greater Dispersion in the Range of Teachers' Salaries	April	32
YOUNG, W. EDWARD — How One Visiting Teacher Meets the Needs of Handicapped Children	March	44

Page

27

ary 46
ry 68
ry 55

53

49
50
52
62
22
68

ary 92

17

17

50

ary 51
50

46

uary 41
ary 35
73
64

uary 78

64
77

ary 46
ary 40
uary 45
uary 21

23
ruary 77
72

uary 28

rch 45

e 26
ruary 49
rch 53
il 53
e 50

uary 35

y 23

uary 42

ril 32

rch 44

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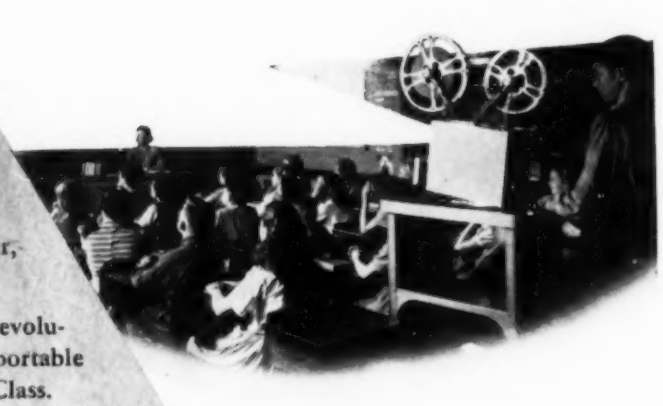

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VOL. 116, NO. 1 JANUARY, 1948

TABLE OF CONTENTS

Cover: Planning the New School Building, Board of Education, Freeport, New York

Basic Principles of School Building Design, *Don L. Essex*..... 19
The Changing Classroom, *Samuel G. Wiener*..... 21
The Kind of Information Needed for a Survey of School Building Needs, *Frederick M. Raubinger*..... 24
Plan and Equipment Standards for Orthopedic Units, *C. H. Woodruff*..... 28
Color Planning for School Interiors, *M. Pleason*..... 29
Odyssey Toward Quality — II, *William G. Darley*..... 31
Anticipatory School Site Selection and Purchase, *N. L. Engelhardt*..... 33
The Village Colleges of Cambridgeshire, *David Norton Yerkes*.... 35
Panic in Places of Assembly, *Fred Wells*..... 40
Public School Pools, *Tom C. Prince*..... 41
Riverside Converts Army Buildings Into School Housing, *Harry K. Young*..... 42
Lewiston Builds Comprehensive Elementary Schools..... 44
A Building for a 12-Year School..... 47
A Word of Encouragement From the President of a School District, *S. F. Carne*..... 49
The Use of Lightweight Steel Joist Floor Construction for School Buildings, *S. H. Burgess*..... 51
A Classroom for Primary Schools, *J. Chester Swanson and Fred W. Hosler*..... 55
Is the Use of Germicidal Aerosols Feasible in Schools?, *Paul W. Seagers*..... 58

EDITORIALS:
School Building Construction in 1948..... 54
The Passing of Nicholas Murray Butler..... 54

School Building News 46
Teachers' Salaries 60
New Books 62
School Law 66
School Finance and Taxation 69
School Board Conventions 70
School Board News 72
New Supplies and Equipment 82
After the Meeting 83

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The contents of this issue are listed in the "Education Index."

Leadership in the Schoolhousing Program

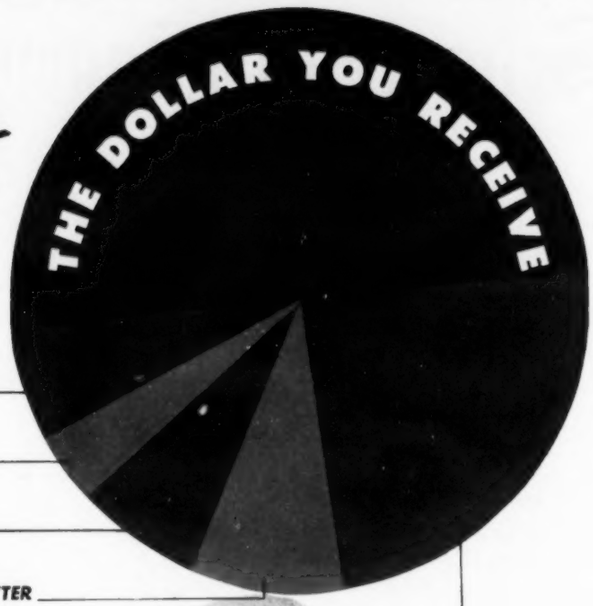
One of the most important responsibilities of school administration is the problem of providing adequate schoolhousing facilities that will function effectively as educational equipment. Leadership in initiating and effectively completing the schoolhousing program is the responsibility of the superintendent of schools. School plant preparation involves a comprehensive understanding of the educational program and the ability to translate this program into the required schoolhousing facilities. While the responsibility for financing the school building program rests with the school board, and the details of design and construction are the responsibility of the schoolhouse architect, the successful carrying on of the schoolhousing program revolves around the leadership of the superintendent of schools.

The superintendent of schools is not expected to know the details about the construction of school buildings, but he certainly should know a great deal about the many features of schoolhousing which contribute directly to the educative process and make possible for it to become efficient. A school building is the largest single piece of educational equipment and must be designed and equipped to function as such.

Each issue of the JOURNAL contains professional material and specially prepared articles on the school building program. The January issue is given over entirely to schoolhousing and is published as our ANNUAL SCHOOL BUILDING NUMBER. The comprehensive material contained in this issue offers practical information for school administrative action in the building program of 1948.

The "Guide to Products and Services" in this issue serves as a convenient means of obtaining valuable assistance on your procurement problems. Refer to the advertising and then make use of the inquiry form on page 83.

your food cost



5% VEGETABLES • POTATOES

2½% SALAD

7½% SOUP • RELISH • APPETIZER

10% DESSERT • BEVERAGE • BREAD & BUTTER

25% MEAT

Those successful in serving food to the public have almost universally adopted some method of food cost accounting and cost control. Under a common method, the daily, weekly or monthly total receipts are compared with the actual cost of the food used in the preparation of the meals served (*in the time used*). If the receipts amount to $100.00 and the amount spent for food is $50.00, the food cost is 50%. After determining the total food cost it is customary to separate this item into the divisions which go to make up this cost by finding the amount expended for each item and its percentage of the total cost. A simple formula for guidance of those who have no definite system is the division illustrated above.

Invariably a careful analysis will disclose the value of using a better quality in developing the appeal of your lower cost items.

51%
A TRUE STORY

A prominent Chicago hotel employed a new steward and instructed him that they wished the food cost reduced from 57% to 51%. The new steward immediately started to purchase higher priced foods! The management was confounded because they found their food cost lowered the desired amount. The guests were delighted by the improved food. The hotel found an additional substantial saving in the cost of hauling away the wasted food left on plates.

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THE AMERICAN
School Board Journal

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Basic Principles of School Building Design

*Don L. Essex**

Not long ago I was going over a set of preliminary plans with a superintendent of schools, making free use of a yellow pencil and scale, skipping from here to there in what was apparently a disorderly procedure. After a while he asked me very courteously, too courteously, I'm afraid, "Just what do you look for when you examine preliminary plans?"

That was a good question. It really is the question to which this paper is addressed. In fact, the title might well be, "What to look for in the examination of preliminary plans." Basic principles of planning have no value in a vacuum. They must be applied if they are to be useful. And the most useful place to apply them is, for the architect, in preparing preliminary plans, and, for the schoolman, in examining preliminary plans. Certainly, after working drawings and specifications have been completed is no time to drag in basic principles of planning.

In setting forth basic principles of school building design, I have included many of the old terms which school building specialists have been using for years. I have been compelled to make my own interpretation of some of these terms as we specialists do not always agree among ourselves as to just what these terms mean. The word *flexibility* is a striking example of noted disagreement.

In this paper I am assuming that the educational program to be housed has been determined. Furthermore, the scope of subject does not permit a discussion of detailed room planning. My interest is in broad outlines such as would be found in preliminary plans in which there would be included an outline specification. As stated before, it is in the preparation of preliminary plans that basic principles must be applied if they are to be applied at all.

These basic principles in my judgment are as follows: (1) safety; (2) comfort and health; (3) beauty; (4) expansibility; (5) flexibility; (6) association; (7) accessibility; (8) adequacy for community use; (9) economy.

Safety in Schoolhouses

All the wealth of this mighty country cannot buy the life of a child of mine or of yours, yet to save paltry sums school buildings have been constructed recently which were bad fire hazards the first day they were opened and in which children have been burned to death. Time permits me to set forth only a few fundamental principles of planning for safety from fire:

1. All buildings of two stories or more should be constructed of fire-resistive material.
2. Main corridors should have an unobstructed width of at least eight and one-half feet.
3. Classroom doors should be equipped with locks of a type that any locked door can be opened from the inside.
4. Exterior doors should swing outward and should be equipped with a panic-bolt type of release.
5. No building of two stories or more should have less than two stairways so located that if one is blocked by fire or smoke, all pupils on the upper floor or floors can reach the other.
6. Any basement space used for pupil occupancy should have at least two means of escape remote from each other.

Just a word about fire escapes: A fire escape is a poor substitute for a fireproof inside stair. Acceptance of a fire escape on a new school building violates a fundamental principle of planning for safety from fire. All safety hazards are not related to fire. Faulty stairs and steps, slippery floors, dark passageways, sharp projections, rough playground surfaces, and dangerous equipment, may result in cuts and bruises, or even in crippling accidents and loss of life.

Comfort and Health

The elements in school building planning which make the major contribution to comfort and health are orientation, heating and ventilation, lighting, sanitary facilities, and provision for noise control.

Every classroom used by the same group of pupils substantially all day should (at least in northern states) be flushed with sunlight the major portion of the school day. Rooms without sunlight are cheerless, uninviting, and may be depressing.

Heating and ventilating standards should achieve two purposes:

1. Provide proper thermal environment in the schoolrooms.
2. Eliminate odors and toxic substances from the atmosphere.

There is a new emphasis in the field of school lighting, or visual comfort and efficiency, as the National Council on Schoolhouse Construction[1] is now calling it. The importance of foot-candle standards is not underrated, but we are now also giving thought to the company the foot-candle keeps. Concern about the relationships of brightness, brightness differences, and total visual fields have broadened considerably the previous narrow foot-candle concept.

Complete, well-arranged and maintained sanitary facilities are essential for the comfort and health of the school child. The standards for the number of toilet fixtures recommended by the American Council on Education are acceptable.[2]

It is generally accepted, and the great weight of evidence confirms the view, that excessive and uncontrolled noise interferes with attention and concentration, reduces efficiency of mental work, and produces nervous strains.

Noise reduction and control can be achieved, at least partially, by acoustical treatment. In the past it has been rather common practice to limit acoustical treatment to auditoriums, music rooms, and typing rooms. This practice should be extended to include corridors, libraries, shops, gymnasiums, and all classrooms. Quiet floor coverings are also helpful.

*The author, who is the very able Director of School Buildings and Grounds Division of the New York State Department of Education, Albany, used the present paper as the basis of an address before the Institute on School Buildings, University of Wisconsin, Madison, August 6, 1947. In introducing the subject he quite modestly mentioned the fact that he had "drawn deliberately and freely from writings and expressed ideas of associates and colleagues in the field of school building planning." — *Editor.*

[1]National Council on Schoolhouse Construction, *1946 Report*, Part II, "Guide for Planning School Plants," p. 58.

[2]"Utilization of School Sanitary Facilities," *School Plant Research*, No. 3, 1942, American Council on Education, Washington, pp. 22–23.

Beauty in School Buildings

Tennyson has Ulysses saying, "I am a part of all I have met." Walt Whitman writes of a child who went forth every day and everything that he saw — the early lilacs, the grass, white and red morning glories, white and red clover — became part of him. Keats says that "A thing of beauty is a joy forever."

Obviously, in desiring beauty in school buildings, we have the poets on our side. But I believe that we also have on our side all thinking people who love children and who recognize that children are part of all they meet.

Beauty in a school building need not be expensive. Nor does beauty require classically balanced elevations. Good proportions of masses and texture of materials are better servants of beauty than ornamentation, clock towers, columns, cornices, and architectural gingerbread. On this subject, Wallace K. Harrison, architect of New York City, says pithily, "Beauty . . . depends upon proportions and is no way related to some recognizable and familiar decoration."[3]

Expansibility of Buildings

Expansibility briefly and simply means ease of extension. To permit ease of extension the building should be so located on the site that extension is feasible; corridors should extend through to outside walls; stairs should be placed at right angles to corridors rather than in corridor ends; classrooms should be so located that natural light will not be cut off by the extension; mechanical service units and lines should be planned for loads excessive of immediate needs.

As Lawrence Perkins[4] points out, "The most difficult building to expand is a two-or-three story symmetrical box with classrooms wrapped around three or four sides of an auditorium-gymnasium." Expansion is easier (again quoting Perkins) "in a free and open type of planning where balance (as contrasted with symmetry) permits a workable and aesthetically satisfying answer to new demands."

Flexibility

Of the educator's noted proclivity to fasten on to a word and then ride the life and flavor out of it, Perkins, in the article previously mentioned, says, "The history of organized education (as seen by an unlettered layman) is a history of words, a series of words discovered — exalted — wrung dry — and discarded; words that in many cases connoted valuable ideas and deserved a better fate." Perkins fears that *flexibility* will run this same gamut and end up as a "semantic casualty."

No two specialists on schoolhouse planning are agreed on the definition of the word flexibility. They are, in fact, more inclined to tell how to achieve it. Since I have listed flexibility as one of the basic principles, and since there is as yet no generally accepted definition of the word, I am providing my own as follows:

Flexibility provides opportunities to change and enrich the educational program by permitting multiple use of rooms and ready changes in room sizes and appointments.

The gymnasium-auditorium is the traditional example of planning a room for multiple use. The activities requiring a gymnasium and the activities requiring an auditorium have almost nothing in common except the need for a large floor area. The only defense for the combination unit as against separate units is one of economy. You build the combination unit because, and only because, you cannot afford the separate ones. Even in a two-teacher building separate units are better than one combination unit, but few districts can afford such a luxury.

In New York state we have just about given up trying to use the gymnasium auditorium for music, for much of the dramatic work, and for much of the audio-visual education program, and are turning to the cafeteria as a better room for these multi-purposes.

In small high schools (enrollment less than 150; and 83 per cent of our high schools in this country are under 150) it is utterly impossible to build many classrooms each designed exclusively for one subject without having ridiculously low utilization. Some high school classrooms just must be used interchangeably for different subjects. Even art in the small high school must share a room with other subjects. Planning classrooms for interchangeable use is, therefore, an important element in flexibility.

With a changing educational program it is sometimes desirable to lengthen or shorten a classroom. To do this readily the end-wall partitions should be nonbearing, removable without basic structural changes, and free of wiring, piping, and ducts. For a fuller discussion of this element of flexibility, see the new guide recently published by the National Council on Schoolhouse Construction.[5]

Association of Instructional Areas

Rooms serving a common program should, if possible, be placed close together. For example, the music suite — ensemble rooms, individual practice rooms, instrument and band uniform storage rooms — may well be grouped around the auditorium stage; shops may be planned in a separate wing; rooms for social studies and English serve better if located near the library; in an elementary high school building rooms used primarily by elementary pupils should be in one part of the building; rooms used primarily for high school pupils should be in another part.

Obviously, the principle of association cannot be fully attained. Every department in the school wants a favored location. There must be compromises.

Accessibility of Facilities

Briefly, accessibility means that facilities used most frequently by the greatest number of pupils should be most accessible. Examples of such rooms are the auditorium, the gymnasium, the cafeteria, and the administration rooms.

Adequacy for Community Use

There is a growing sentiment that the school plant should be planned not only for the educational needs, but also for many if not all the social, civic, recreational, and cultural needs of the community served by the school. If this is done inefficient utilization and duplication of costly building structures can be avoided. The tax dollar yields more if the school building has both school and community uses. Moreover, rich dividends in community interest in and support for the school are gained.

Fortunately, since many rooms can be used dually by school and community, few if any additional facilities over and above those commonly found in a well-planned school building are needed to take care of community activities. This is not to say that every well-planned school building — that is, well planned for the usual school program — lends itself readily to community use. Certain principles should be followed in planning a school building if community needs are to be properly and economically served.

1. The facilities used by the community should be so located and grouped that they are readily accessible from the main entrance.
2. The heating system should be so designed that the rooms used for community purposes can be provided with heat adequate for occupancy, while at the same time the rest of the building is held at a lower temperature.
3. Storage space for equipment essential for community activities should be provided.
4. Certain special appointments and service features, such as floodlights for outdoor play areas, should be considered.
5. Toilet facilities for public use should be available. Frequently, regular school toilets will serve this function.

Economy in Plan and Construction

Economy does not mean cheapness. A cheap school building in the long run may prove to be regretfully expensive.

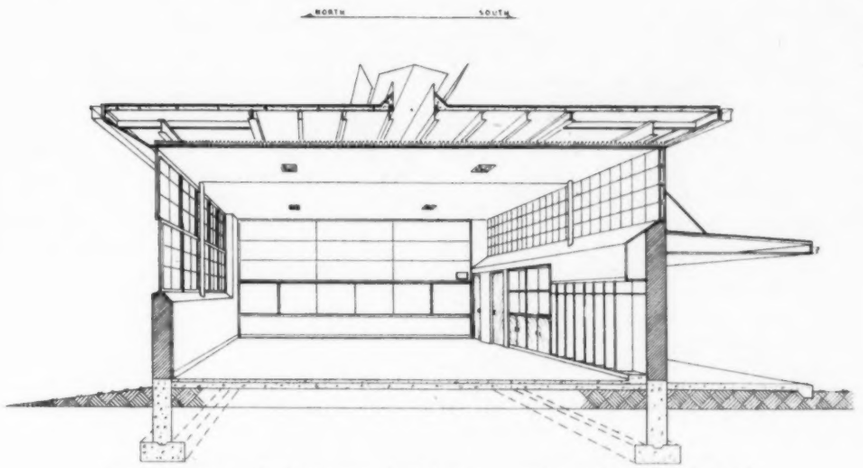
Nor does the principle of economy necessarily conflict with the other basic principles. Safety, comfort, and health cannot be translated into dollars and cents. Beauty, expansibility, association, accessibility, and adequacy for community use all can be had without undue cost. Flexibility contributes greatly to economy.

I only enumerate a few principles relating to structural design which help to achieve economy: fitting the building to the site rather than fitting the site to the building; on a sloping site planning recreational areas at different levels; locating the building on the site to permit short, direct approaches and the most economical installation of service facilities; giving full consideration to an asymmetrical plan; eliminating architectural gingerbread; combining lobbies for the gymnasium and the auditorium; using engineering services free from sales connections; being careful not to overdesign either structurally or mechanically to provide absurd margins of safety.

[3] *American School and University*, New York, 1937.
[4] *School Executive*, May, 1946.
[5] National Council on Schoolhouse Construction, *1946 Report;* Part II, "Guide for Planning School Plants."

The Changing Classroom

Samuel G. Wiener, A.I.A.[1]



Cross section of classroom looking toward teacher's end, with supplementary glass block lighting along left side.

Do We Need "Standards"?

For a number of years the practice has been to plan school buildings to conform with certain standards of size, dimensions, equipment, and materials. This procedure began at a time when it was generally recognized that our school buildings were often inadequate and unsafe, and it would be necessary to establish minimum requirements to safeguard health and life, and to obtain a certain degree of comfort. The "standards" became minimum requirements in most cases, and found their way into many of the state and city codes which regulate the design and construction of school buildings.

There is no doubt that the initial effect of these standards was valuable in raising the quality of our school buildings from a very low level. Criteria based on minimum requirements for health and safety may still have a protective value, but they are often so detailed and restrictive that planning becomes static and fails to develop with changing teaching methods and improved technology in building construction and equipment. Most school building codes contain requirements that no longer apply to local conditions or recognized teaching methods. In some states the architect is prevented from incorporating acceptable improvements in design due to antiquated code requirements.

Before adopting any standards for classrooms let us consider the requirements that must be met by modern teaching. If conditions of climate, site, finance, materials available, and teaching methods were the same for all schools and for all classes it would be possible to design an ideal room. Of course, such uniformity does not exist and consequently a classroom cannot be properly designed until all information is obtained relating to the requirements of the persons who will use the room and conditions affecting the construction.

[1]Samuel G. Wiener and Associates, Architects, Shreveport, La.

No Standard Classroom for all Grades

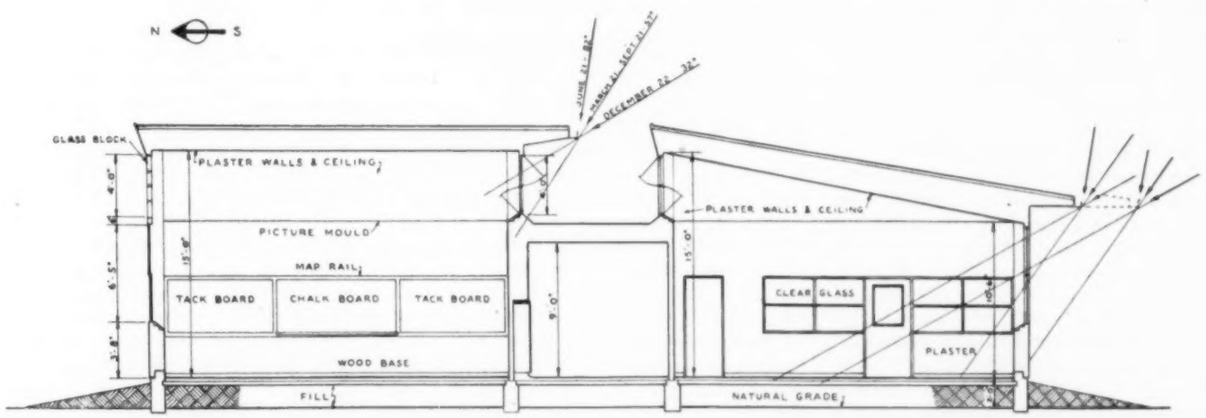
The planning is further involved by the fact that the requirements vary for the different grades of the same school and the design of each room should facilitate the learning activities and conform with the maturity level of the class. It has long been recognized that the kindergarten had special requirements for the teaching and handling of the youngest age group, and this knowledge resulted in the design and equipment of a room entirely different from the other classrooms. Today we know that the requirements vary for each grade from the kindergarten upward, the variation being much greater for the primary grades. The architect must know what is needed for each grade and the room should be designed accordingly.

To summarize the above, it may be stated that there is no ideal classroom for the same grade in all schools, or for all grades in any school.

What Is a Classroom?

The word "classroom" evokes a certain picture, and it is usually one that recalls the stereotyped teaching room which was long accepted as meeting the requirements for the first seven or eight grades. The best of this type conformed with the generally accepted code requirements such as 15 to 20 square feet per pupil, 12-foot ceiling height, and glass area equal to 20 per cent of the floor area.

The modern classroom serves for more than the mere book teaching and hearing of lessons. It is also a workroom where the children use various materials and learn largely through group study and projects. It is a laboratory where children learn through their experiments and work, and where under best



Cross sections of classrooms designed to face north and south respectively.

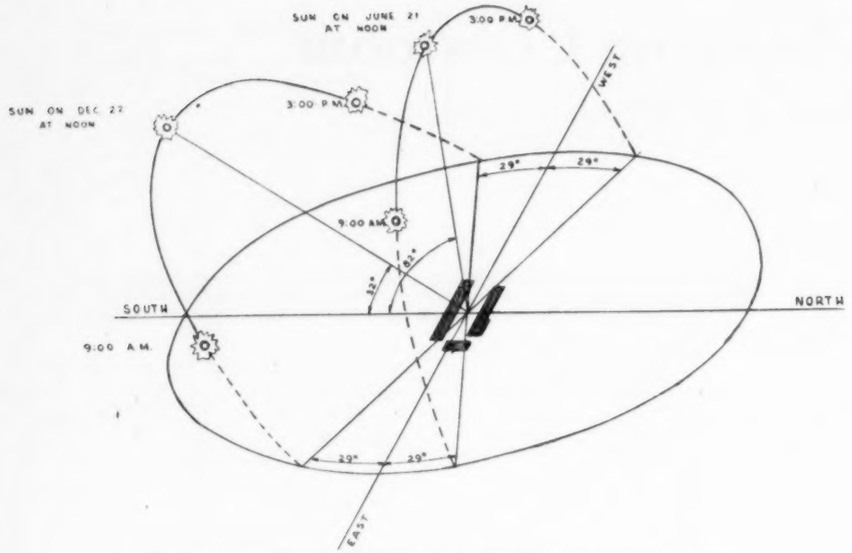


Diagram illustrating method of calculating elevations of sun at winter and summer solstice.

conditions they cultivate enjoyment of their work and an enthusiasm for learning which would be difficult to achieve in the conventional classroom. Just as important, is the fact that the classroom is the environment for a large part of every child's life, and it is our responsibility to make it pleasant as well as comfortable.

Much has been written about making the classroom "homelike" and some attempts have been made to introduce into schoolrooms some of the furnishing and qualities associated with homes. There is very little in common between the requirements of the interior of homes and schools, and an attempt to make the schoolroom look "homelike" may produce results that are both incongruous and unattractive. There is no reason why a schoolroom should look like anything but a schoolroom. As such it can be both efficient and attractive.

A visitor to a modern class will note a change in the teacher-pupil relations. These relations are certainly friendlier and more co-operative than formerly. As a rule we find the teacher directing activities and working with the pupils. The functions of the teacher, and the requirements of the classroom have broadened, and the new teaching methods must be housed and equipped in rooms that facilitate and encourage rather than hamper the program.

Are Schools Built for Children?

We are safe in generalizing to the extent of saying that larger areas and additional equipment are now required. The needs of each room must be thoroughly understood before the architect can design the room. The mental maturity and the size of the class must be fully taken into account. To learn what is needed will take a great deal of time in conferences with teachers of the various grades, but without this information serious mistakes cannot be avoided.

The acceptable school of the past was one that met the requirements of health and safety, and in appearance was considered one of the most important buildings of the community. It was usually an imposing building, monumental in its proportions and institutional in concept. The exterior picture was of primary importance, and a generous proportion of the cost went into the creation of what was considered an imposing exterior. This attitude cultivated a neglect of the teaching and living requirements, and a high degree of standardization developed. The monumental scale of the buildings was intimidating to children and the interiors were drab and oppressive. I doubt if any adult today has pleasant memories of the interiors of the schools he attended.

We know that the early years of our children's lives are most important, and that their surroundings make a deep impression on them. It follows that in designing the rooms in which they spend such a large part of their lives we should strive to obtain a pleasant and friendly atmosphere.

Good Rooms Make Good Buildings

In designing desirable classrooms we are at the same time determining to a large extent the exterior appearance of the building. Designing along traditional lines will impose conditions on the interior that will make functional planning impossible, and there will result an unhappy compromise between what is needed for the interior use and the exterior appearance. There is no successful way to obtain the best for the interior and present a semblance of traditional style in the exterior. Schools that are designed in modified "Gothic" or "Colonial" cannot have classrooms which meet the exacting requirements of present-day education. Traditional window spacing is inconsistent with good daylight illumination and can only be used at a considerable sacrifice of functional requirements. From this it follows that in planning a school we must give primary consideration to creating the most desirable interior, rather than obtaining a monumental or picturesque exterior effect. Since the classroom of an elementary school is the basic unit, it is advisable that the architect design the building to obtain the best possible classrooms, without primary regard to the form of the building. In doing this, we shall find that the functions of the rooms determine the form of the building, and the exterior will of necessity express the interior.

Flexibility in Schoolhouses

In recent years there has been general recognition that more flexibility is needed in school plans to meet the ever changing needs of the community and the requirements of teaching. The rigidity of the standardized buildings of the past have made alterations difficult and expensive. Dr. N. L. Engelhardt has stated that school planning of the first four decades of this century is already obsolete. The burden of this obsolescence remains with us, but in designing our new buildings we should facilitate future changes in construction and that will make possible varied uses of the different elements of the building.

This applies especially to the classroom. It is generally accepted that a fixed arrangement of seating and furniture is undesirable, and the room should be designed so that various arrangements can be made allowing the students to face any direction. In a well-designed classroom modifications may be made within the room itself in order to adopt changing requirements, and to conform with new activities not conceived at the time of planning.

Further flexibility can be obtained by the use of a structural system that does not permanently locate the partitions between rooms, cabinets, etc., and by spacing windows in long groups with small mullions between. This permits varying the length of rooms to meet the requirements of different classes. The plan for a proposed school building should indicate how the building can be enlarged by simple additions or extensions. Additions should be made without interfering with the operation of the school, or seriously altering the existing building.

Lighting the Classroom

The conventional classroom leaves much to be desired in adequate natural lighting. Tests in average schools show the appalling fact that a large part of the room receives only 1 to 5 foot-candles of illumination, which is a small fraction of the recommended 20 to 25 foot-candles. The desks near windows may obtain adequate lighting intensity, while those near the corridor wall suffer to a marked degree. In addition to the poor distribution of light the pupils and teacher must submit to the evils of glare.

Recent experiments and some of the more modern buildings have proved that proper daylight illumination can only be obtained by designing the room to better control and distribute the light from the exterior. Most

designs employ the use of glass areas along opposite sides of the classroom, usually with windows on the outer side, and elevated sash along the corridor side. Good results have also been obtained by the use of glass block above ventilated sash, with an exterior sun shade and the sash.[2]

Designing for high level, well-distributed, glareless illumination is a matter that requires considerable study; there is no one answer to good results. In studying the designs of rooms engineered for good daylight illumination it should be realized that good illumination is sometimes gained at the sacrifice of other desirable qualities.

From recent research on this subject we may make the following conclusions:

1. One-story buildings offer the best possibilities for good lighting.

2. Lighting from windows on one side only is insufficient and unbalanced, unless aided with directional glass or baffles.

3. The room should be planned to avoid direct sunlight, and should receive sufficient indirect outside light to adequately illuminate all parts of the room for unstrained vision while engaged in all classroom activities.

4. In designing for adequate light it is very important to take the necessary precautions to avoid overheating during the warmer months. This applies especially to schools in the South.

[2]This was first used in the Bossier, La., High School, 1938. Designed by the author, AMERICAN SCHOOL BOARD JOURNAL, Nov., 1941.

5. The source of light should be high, and should be directed against a light reflecting ceiling. The use of diffusing and solar resistant glass should be considered. It is advisable that all sash be well above the height of the eyes of seated students. I have found that 54 inches is very satisfactory for the sill height.

6. Walls and woodwork should be painted a light but colorful tone in a semigloss finish. My practice has been to paint each room in a different color scheme. This creates a favorable interest in the room and adds to the feeling of individuality. Walls may be painted in two colors. If possible the floor should be of a light color. In place of the conventional slate chalk board, a material lighter in tone and not glossy in finish is desirable.

7. The ceiling height of not less than 14 or 15 feet should be considered.

What Direction Should a School Face?

I believe that first consideration should be given to the orientation of classrooms. Most of the literature relating to school orientation seems to have been written for northern climates, and an east-west orientation is often advised. My experience has convinced me that there is no defense for having the outside walls of a classroom face either east or west in a southern climate. A room adequately lighted from windows on the east or west will result in an overheated room during several months of the school year. The rooms will be charged with radiant heat in the morning on the east side and in the afternoon on the west. No amount of ventilation can make these rooms pleasant.

With windows on the north side we can obtain a pleasant diffused light. On the south side the head of the windows should be sheltered with some form of canopy that will prevent the direct sun rays from entering the room. I cannot overestimate the importance of correct orientation and advise either a north or south exposure of all classrooms, irrespective of the relation of the school building to the grounds, or the appearance of the building from the street.

What Equipment Is Needed?

I have stated that the requirements of each grade change from kindergarten upward and that the needs of each grade should be studied in the light of the maturity level of the class and the activities engaged in. Chalk board, tack boards, cabinets, storage space, displays, shelving, worktables, sinks, plant boxes, graphic aids, etc., should be selected as needed for each room. The variation in requirements will astonish one who has thought of all rooms as needing the same equipment.

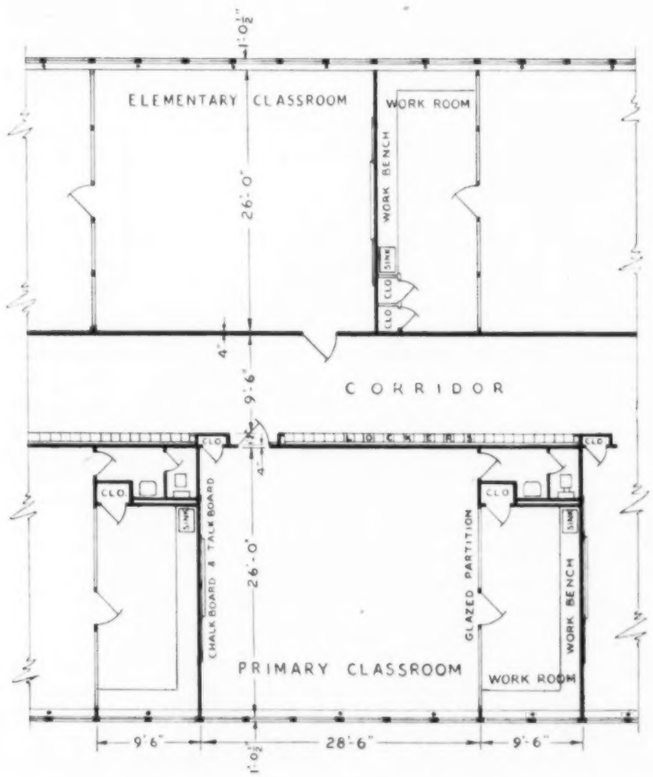
The use of toilet rooms directly accessible to the primary classrooms has been highly favored. In many modern schools the lower classrooms are arranged with communicating toilet rooms, the boys' at one end and the girls' at the other. This reduces the amount of plumbing to three or four fixtures per room.

Play Space

The "outdoor classroom" is a very desirable feature that has come into favor only recently in this country. The outdoor room is planned in connection with the classroom and is entered directly from doors in the outer wall. This room — or rather space — not only gives the class the benefit of sunlight and air, and a pleasant break in what may become the monotony of an indoor existence, but it also opens new fields of study. A good method of obtaining an outdoor room economically is to plan it on the south side of the building, with a canopy above the windows, extending outward 8 to 12 feet from the building. This canopy will also protect the building from the south sun. This has been done very successfully in several schools in California.

Conclusion

The successful design of a classroom requires a thorough analysis of the needs of the room, rather than a set of formulas or standards. Modification and compromise are usually imposed upon the architect due to lack of funds and the problem becomes one of obtaining the best results within the limits of the funds available. This is a reasonable situation, but the architect should not be hampered by the requirement of forcing the building to conform with other buildings on the grounds or to a traditional style. Let us realize that our old buildings belonged to an older order of education, and that the possibilities for improving our buildings in the future are as unlimited as the progress in education and building technology.



Plans of typical primary and elementary classrooms as planned by the author for a southern school.

The Kind of Information Needed for a Survey of School Building Needs

Frederick M. Raubinger[1]

Ridgewood, N. J., has completed a school building survey which provides the background of fact essential to predicting building needs for the next two or three decades. The survey was carried out under the direction of Professor Henry H. Linn of Teachers College, Columbia University. The conclusions and recommendations concerning new school construction are his. However, the facts on which conclusions are based were assembled and prepared for the most part by the staff of the school system under his general direction. What facts were needed and where they were obtained is information which should be of value to other communities. Such information, we found, is important not only in forecasting building requirements, but also may be used in connection with decisions on other kinds of school administrative policies.

The Community

Whether it is new buildings or a new curriculum or a new salary schedule that a school system is considering, it is highly desirable that plans be based upon as accurate a conception of community characteristics as it is possible to obtain.

Therefore, the first section of the Ridgewood building survey is devoted to a description of the community, past and present, and to an attempt to discern significant trends in community growth and development. Is the community virile and growing? Has it reached a point of stability, or is its population declining? Has it land available for new home construction or is almost all of the available building space occupied? What is the probable future trend in population? If there is land available, is there evidence that builders find the community a desirable place to invest? What is the value of the homes? What are the characteristics of the housing? What are the characteristics of the population? What occupational groups are represented? What is the educational level?

Such knowledge of the character of the community is fundamental information upon which more detailed information applying specifically to building requirements or other school needs must be based.

The various U. S. Census tracts are a fertile source of data from which answers to the questions above may be deduced. The publications of the Census may be obtained at small cost by writing to the Superintendent of Documents, Washington, D. C., or in larger communities may be found in the public library. The two main classifications are "Reports on Housing" and "Reports on Population." These are subdivided into five volumes for the former and ten volumes for the latter. Generally speaking, under "Reports on Housing," Vol. I, "Data for Small Areas by States," and Vol. II, "General Characteristics of Housing by States" are the most useful for the smaller communities. Under "Reports on Population," the most useful are "Characteristics of the Population by States." Exactly which tracts will contain the information required by a particular community depends somewhat on the size of the community. Before purchasing any material it is wise to consult an index of census materials.

Examples taken from the Ridgewood survey best illustrate the value of census data. Using figures taken from the 1920 and 1940 Census of the United States it was possible to compare local trends in population growth with those of the country, the state, and the nation. Arranged in tables, the figures appear as follows:

TABLE I. Trends in Population Growth, Village of Ridgewood, Bergen County, State of New Jersey, and the United States, 1900–1940

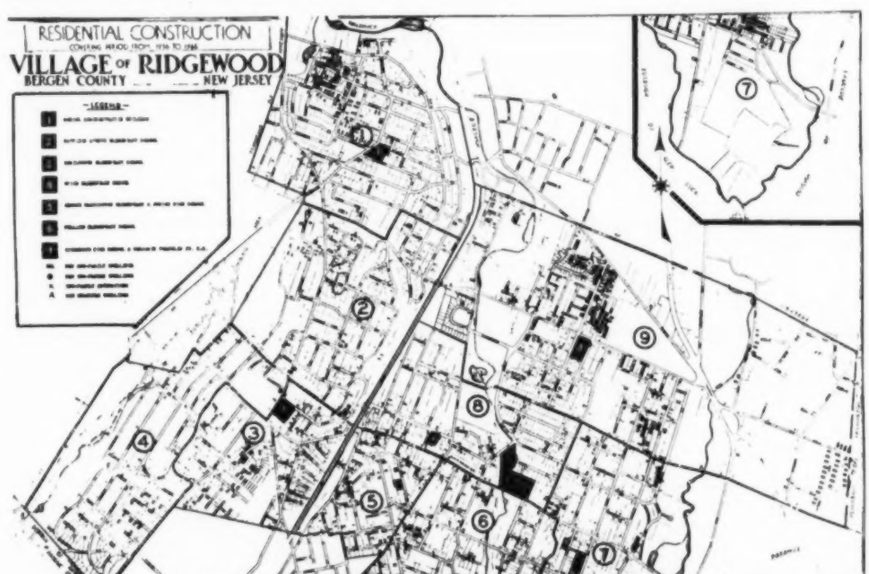
Year of census	*Ridgewood*	*Bergen County*	*New Jersey*	*United States*
1900	2,685	78,441	1,883,669	75,994,575
1910	5,416	138,002	2,537,167	91,972,266
1920	7,580	210,703	3,155,900	105,710,620
1930	12,188	364,977	4,041,334	122,775,046
1940	14,948	409,646	4,160,165	131,669,275

TABLE II. Percentage Increase in Population Over the Previous Census

1910	101.7	75.9	34.7	21.0
1920	39.9	52.7	24.4	14.9
1930	60.8	73.2	28.1	16.1
1940	22.6	12.2	2.9	7.2

From Tables I and II it is clear that in Ridgewood the percentage of increase in population far exceeded that of the United States and of New Jersey in every decade. In the first, and significantly, in the past decade, the increase exceeded the percentage of increase for the county.

Since our survey was made during the school year 1946–47, we did not have census figures to give us the present population. An estimate of 17,457 was arrived at by a method which could be followed in any community. From the census tract "Housing, First Series, New Jersey," we found that there were in that year 4165 occupied dwelling units in Ridgewood, housing a total population of 14,948, or an average of 3.59 persons per dwelling unit. There were 248 unoccupied units in 1940 which we presumed were occupied at the time of the survey by an average of at least 3.59 persons, or a total of 890. From the local building inspector we found that 451 additional dwelling unit building permits were issued between 1940



Spot Map used to locate recent and prospective residential construction.

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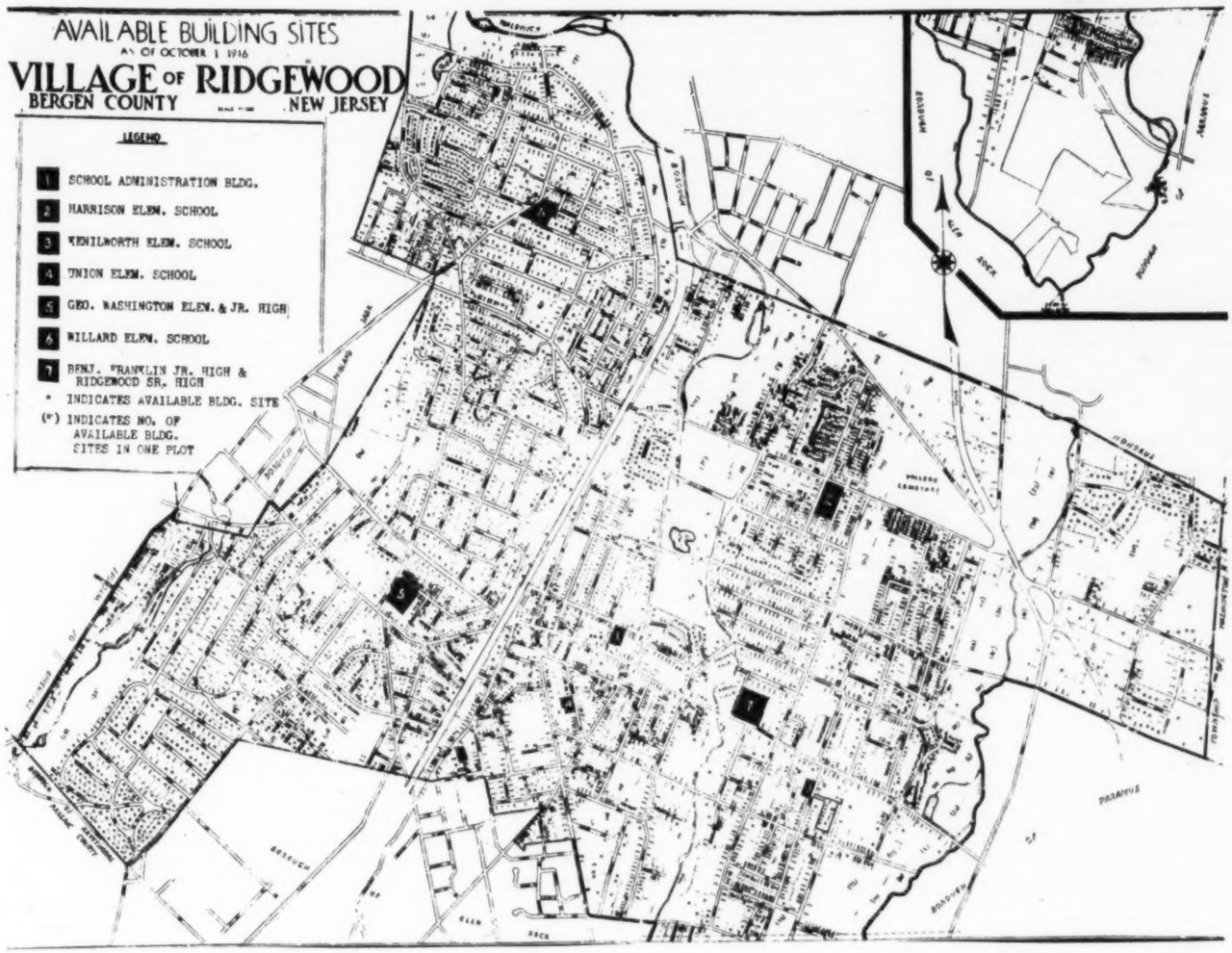

AVAILABLE BUILDING SITES
AS OF OCTOBER 1 1946
VILLAGE OF RIDGEWOOD
BERGEN COUNTY NEW JERSEY
LEGEND
1 SCHOOL ADMINISTRATION BLDG.
2 HARRISON ELEM. SCHOOL
3 KENILWORTH ELEM. SCHOOL
4 UNION ELEM. SCHOOL
5 GEO. WASHINGTON ELEM. & JR. HIGH
6 WILLARD ELEM. SCHOOL
7 BENJ. FRANKLIN JR. HIGH & RIDGEWOOD SR. HIGH
* INDICATES AVAILABLE BLDG. SITE
(*) INDICATES NO. OF AVAILABLE BLDG. SITES IN ONE PLOT

Spot Map of Available Residential and School Plant Sites.

and July, 1946. (In assembling this latter information it is necessary to separate building permits for additional dwelling units from permits issued for repairs and other purposes.) The 451 units with an average of 3.59 persons each would house another 1619 persons. The total estimated population in late 1946 was, then, 14,948 plus 890 plus 1619, or 17,457.

It was clear from the population figures that the community has grown steadily over the past four decades. On the basis of growth figures, plus additional information about future room for expansion, Dr. Linn predicted that the total population in 1960 would be 21,500, and that a total population of 25,000 would be attainable by 1970.

To get a reliable estimate of the possibilities of future expansion we obtained an official assessment atlas of the town and spotted every plot that met the high zoning requirements and that might be available for residential construction. We found that there were 2500 such plots.

The assessment atlas was also used to spot the residential construction completed during the period 1936–46. The purpose of this was to locate the school districts in which the most residential construction had been concentrated. A comparison of the map showing available building sites with that showing construction during a ten-year period revealed that the same school districts in which the ten-year construction levels had been highest were also the ones where the greatest future growth might be expected.

Further light on the question of probable future expansion was obtained from the census. Choosing 13 communities in the state somewhat similar in certain characteristics to Ridgewood, we determined the average number of persons per square mile by dividing population into land area. We found that there were 2300 persons per square mile in our community, placing us twelfth in density of population. The community with the greatest density of population had 17,678 persons per square mile.

In addition to population figures and forecasts, it is desirable to know something of the characteristics of the population. A community may be growing, it may have further room for expansion, it may have more or less acute building needs, but what is done to meet the needs depends in large measure upon the people who make up the community — their financial ability, the level of education, their general quality. Again census figures are invaluable in appraising the community potential. Tables III and IV which follow illustrate the way a clearer picture may be obtained.

TABLE III. Racial Composition of the Village of Ridgewood 1920–1940*

1	2		3		4	
	1920		*1930*		*1940*	
Classification	*Number*	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Native white	6,539	86.3	10,404	85.40	13,066	87.40
Foreign-born white	838	11.0	1,379	11.30	1,338	8.95
Negro	196	2.6	399	3.26	534	3.58
Other	7	0.1	6	0.04	10	0.07
	7,580	*100.00*	*12,188*	*100.00*	*14,948*	*100.00*

*Source of data: 16th Census of the United States, 1940; 14th Census of the United States, 1920.

TABLE IV. Foreign-born White in 1940 by Country of Birth, New Jersey, Bergen County, and Ridgewood*

1	2	3	4	5	6	7
	New Jersey		*Bergen County*		*Ridgewood*	
Country of Birth	*Number*	*Per cent of total*	*Number*	*Per cent of total*	*Number*	*Per cent of total*
England	39,316	5.7	4,289	5.9	181	13.5
Scotland	27,202	3.9	2,791	4.0	67	5.0
Northern Ireland	8,872	1.3	758	1.0	35	2.6
Irish Free State (Eire)	35,830	5.1	2,807	4.0	75	5.6
Netherlands	11,841	1.7	2,493	3.4	162	12.1
Switzerland	6,935	1.0	1,386	1.9	45	3.4
France	7,352	1.1	1,583	2.2	50	3.7
Germany	89,692	12.6	13,339	18.3	261	19.5
Poland	77,782	11.2	6,424	8.8	39	2.9
Italy	169,063	24.3	4,096	5.6	78	5.8
Canada (other than French)	14,051	2.0	1,821	2.5	93	7.0
Other countries	207,874	30.1	31,258	42.4	252	18.9
Total	*695,810*	*100.0*	*73,045*	*100.0*	*1,338*	*100.0*

*Source of data: 16th Census of the United States.

From census data we found the educational status of the adult population as of 1940. Of the total adult population 25 years of age and over, 33 had no formal education; 186 had attended Grades 1 to 4; 350, Grades 5 to 6; 2245, Grades 7 to 8; 1226, high school for one to three years; 2821, high school graduates; 1093 had had one to three years of college; 1788 had had four years or more of college; 123 did not report education. The median number of years in school completed was 12.3; the median for the state as a whole was 8.4; and for Bergen County, 8.6.

Figures on the labor force as taken from the census, placed in tabular form, appeared as follows (Table V):

TABLE V. Labor Situation of Ridgewood

	Male	*Female*
Professional workers	680	275
Semiprofessional workers	65	19
Proprietors, managers, and official (except farms)	1,186	48
Clerical, sales, and kindred workers	1,199	520
Craftsmen, foremen, and kindred workers	310	7
Operatives and kindred workers	232	44
Domestic service workers	58	649
Service workers, except domestic	134	68
Laborers, except farm	75	0
Occupation not reported	47	36
	3,986	*1,666*

A good many facts about the type of housing in the community were also obtained from the census. The average value of homes in 1940 was $10,000, the average rental $50 per month. One-family houses accounted for 85 per cent of the total. The data of construction of the homes, the living standards as indicated by sanitary facilities, heating, refrigeration, taken with the other facts contribute to a general idea of the type of community being studied. We found, in answer to some of the questions raised previously, that our community is obviously virile and growing, it has desirable land available for new home construction, this land is being developed, the homes have a relatively high value and are for the most part modern in almost all respects. The population, predominantly native white, has a high average educational level. Wage earners generally are from professional, managerial, clerical, and sales workers. The human potential would seem to be present for support of good schools, adequately housed.

The School Population

Population figures for the community as a whole and an analysis of some of the characteristics of the community give important although partial evidence of school needs. A study of school population and enrollment figures provide further and even more significant evidence upon which to base predictions. Statistics from the Ridgewood survey will illustrate the kind of information needed.

Local enrollment trends must be placed against the background of national trends. For the United States as a whole public school enrollment trends corresponded quite closely with population growth until 1930. Elementary school enrollment for the nation started to decrease about that time while the general population growth continued. This diverging trend continued up to 1945, when the elementary enrollment began to show a slight upturn. The decline in the high school enrollment, the result of decreases in elementary school enrollment, did not strike the high school levels until the early 1940's, at which time the effect of the war caused a sharper decline than would have been the case under peacetime conditions.

In our community, however, the trend, with some minor fluctuations, has been upward since 1927. The 1946 figure on average number of pupils enrolled exceeded that of 1927 by 33.7 per cent as Table VI used in the survey shows:

TABLE VI. Average Number of Pupils Enrolled in Public Schools Over Twenty Year Period, 1927–1946*

Ridgewood, N. J.			
Year (Ending in June)	*Number*	*Year* (Ending in June)	*Number*
1927	2,262	1937	2,924
1928	2,309	1938	2,994
1929	2,355	1939	2,991
1930	2,490	1940	2,998
1931	2,601	1941	3,016
1932	2,738	1942	2,982
1933	2,832	1943	2,988
1934	2,775	1944	2,917
1935	2,772	1945	2,936
1936	2,839	1946	3,025

*Source of data: Office of local supervising principal.

This confirms the evidence assembled on growth of the community, the generally upward trend in school enrollment during a period when national trends were downward being due, no doubt, to the fact that our community itself was growing.

If there are private or parochial schools in the community or in the vicinity which draw from local pupils, it is necessary to study their enrollment figures along with those of the public schools. In our case, we found that the number of local pupils in the two parochial schools had increased over a ten-year period from 119 in 1937 to 465 in 1946. This is significant for it shows an increase in local school-age population not apparent in public school statistics, and which in our instance, would have resulted in overcrowding the public school buildings had the parochial pupils chosen to attend the public schools. Should large numbers transfer in the future from parochial to public schools, it would have important bearing on the school building needs.

In our survey we made several studies involving age groups. One was based on birth-rate trends. Information on births to Ridgewood residents was obtained from the National Office of Vital Statistics, Washington, D. C., perhaps the most reliable source for this kind of data. These figures revealed that births increased from 132 in 1938 to 245 in 1944, the figures for an eight-year period being as follows (Table VII):

TABLE VII

1937	152	1941	150
1938	132	1942	213
1939	134	1943	237
1940	161	1944	245

(Those children born in 1942 entered our kindergarten in September, 1947, and enrollment exceeded birth figures by 12. On the basis of birth rate figures, we are presently carrying out a thorough census of preschool children.)

We also set up age and grade tables covering the school years 1926–27 through 1945–46, using figures from local school statistics for pupils enrolled in the public schools in age groups from 4 to 20 years and over, and by grades from kindergarten through the twelfth grade. This is invaluable in estimating probable future grade enrollments.

In order to see whether the schools are caring for almost all children of school age, we again turned to the 1940 U. S. Census to discover the percentage of attendance in some school by age groups. These figures were arranged in a table (Table VIII) as follows:

TABLE VIII. Percentage of Attendance in Some School by Age Groups, for the year 1940, Ridgewood, N. J.*

Age	*Persons*	*Number attending*	*Per cent*
5–6	346	273	78.9
7–13	1,518	1,497	98.6
14–15	483	473	97.9
16–17	478	450	94.1
18–20	759	408	53.8
21–24	785	120	15.3
Total	*4,369*	*3,221*	*73.7*

*Source of date: 16th Census of the United States, 1940.

The figures indicate that the vast majority of those who enter high school remain to graduate. (In the 1930's, in many districts, youth of school age who had left before graduation, returned to school in large numbers, resulting in some instances in a problem of accommodating the suddenly increased student body.)

After having uncovered facts about local pupil population in general, it is naturally necessary to turn to individual school districts within the system.

A table set up on the basis of the average number of pupils on roll at the end of each school year, by buildings, and covering a sufficient period to indicate trends, is invaluable.

From our tables we discovered in our five

elementary districts, a marked trend downward in enrollment in one district, a decline in one, a rising trend in one, and a sharply rising trend in two.

As might be expected, the schools which showed sharply rising trends were in districts where our survey of new building in the past ten years showed the heaviest concentration and where our survey of available building lots showed the most room for expansion. Added to the fact that the buildings in these districts are the oldest in the community, it began to be clear where our immediate problem lay.

This was further borne out by arranging enrollment figures (Table IX) by schools to show peak average enrollment during the period from 1930 through 1945 compared with the 1946 enrollment for individual school buildings, showing percentage of decrease or increase.

TABLE IX. Enrollment Peaks and Averages

Building	*Peak average enrollment prior to 1946*	*1946 Average enrollment*	*Percentage of decrease*	*Percentage of increase*
High school and B.F. Jr. high	1320 (1940)	1,275	3.4	
Geo. Washington Jr. high and elem.	806 (1937)	653	19.0	
Harrison	316 (1945)	324		2.5
Kenilworth	286 (1944)	302		5.6
Union St.	226 (1931)	165	27.0	
Willard	304 (1940 & 1942)	303	0.3	

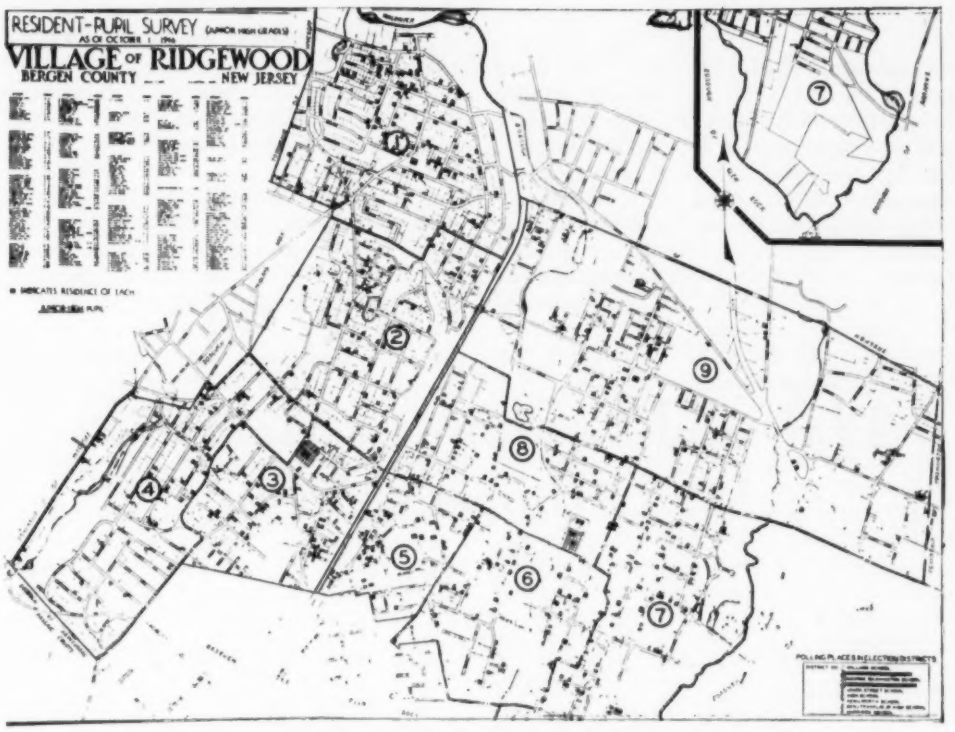
In order to determine whether class sizes were such as to accommodate some of the expected increase in enrollment, we made a study of grade enrollment and class sizes in the elementary schools, by schools, and for the town as a whole.

Finally, in order to give us a graphic picture of present pupil distribution, we again used assessment atlas maps of the community. On one we outlined the elementary districts and spotted the residence location of each pupil in elementary schools. We made a similar map for the two junior high school districts.

Our school population studies showed a sharply increased birth rate beginning in 1942, high enrollments in lower elementary grades as contrasted to most upper grades, and steady increase in total school enrollment over a twenty-year period contrasted to a declining enrollment nationally over a part of that period. We found that two elementary districts showed sharp increases. These were the districts which had had the most residential construction over a ten-year period and which according to our study of available building sites, had most room for future expansion.

The High School

Since the Ridgewood problem involved a question of the future use to be made of the senior high school building, a question somewhat peculiar to our local problem, this part of our survey will not be explained in detail here. We did need to know, as a part of this problem, the extent to which the present building is being fully utilized. The method of determining this may have general application.



Spot Map of High School Students. A similar map located homes of all elementary school pupils.

First, we set up a table of rooms, including regular classrooms, shops, gymnasiums, special rooms, library, etc., and listed opposite, the seating capacity of each room. Next, we took from the master schedule a list of all classes meeting in the different rooms, with the number enrolled in each. From this information we prepared a table to show weekly room utilization. A part of the table illustrates (Table X) the method used.

TABLE X. Weekly Room Utilization, Ridgewood High School

Room No.	*No. of pupil stations*	*Weekly capacity*	*Weekly use*	*Percentage of pupil stations used*	*Percentage of room in use*
2	20	600	315	53	70
4	20	600	126	21	33
101	36	1080	875	81	100
111	34	1020	575	56	83
etc.	etc.	etc.	etc.	etc.	etc.
Total	*1,931*	*55,305*	*35,315*	*64*	*83*

The high school operates on a six-period day or a thirty-period week. The figures above headed "Weekly use" indicate the total numbers of pupils who attend classes assigned to any one room during the week. By dividing the "Weekly use" by the "Weekly capacity" we may ascertain the percentage of pupil stations used during the week. The index of the degree to which the rooms are used is obtained by ascertaining how many periods per week out of the total of thirty each room is actually in use. The column headed "Percentage of time in use" shows to what extent each room is used by classes for all of the thirty periods in any one week. Edgar L. Morphet's study, "Measurement and Interpretation of School Building Utilization," Bureau of Publications, Teachers College, 1927, reported that from 61 to 64 per cent of pupil station utilization represents a good degree of use while 79 to 81 per cent indicates a good degree of room utilization.

As stated above, the study of utilization of the high school building was made because of certain factors which are more or less local complications. However, it is conceivable that knowledge of capacity of high school or junior high school buildings may well be necessary in most building surveys.

The School Plant

Naturally, in any school building survey there must be a careful appraisal of the existing plant. Here, perhaps more than in any other part of the survey, the special knowledge of someone thoroughly familiar with school building construction is essential. Such a person may be available within the school staff. Whether or not such a person is available there is much to be said for employing an outside expert for this appraisal or for enlisting the services of a specialist from the State Department of Education. For one thing, it is probably likely to be accepted by the community as being more objective. Dr. Linn made this part of the survey by personally inspecting every part of every building. He rated all of the buildings on the basis of the Strayer-Engelhardt Score Card for School Buildings. In the printed report he also analyzed each building separately, describing the structure in detail, setting down the dates of original construction and additions, estimating the practicability and desirability of adding to existing buildings as expected expansion of school enrollments occur, commenting on the adequacy of play areas and recommending improvements in existing structures where warranted. He ended by recommending replace-

ment of two existing structures in the near future on new and larger sites and the eventual abandonment of one of the structures as a school. Other subsidiary recommendations were included, which it is not pertinent to report in this article. The point is that by evaluating the data describing the community and the data on school enrollments, and placing against the background an analysis of present structures, he arrived at a number of conclusions and recommendations for future construction.

Financial Status of the School District

With such recommendations, our final task was to analyze the financial status of the district. We set up in tabular form the retirement program for present school bond indebtedness from June 30, 1946, to 1965. In another table we set up a tax schedule for the community showing the tax rate, the total assessed valuation, and the gross tax levy for each year 1936–46. Using figures from these

(Concluded on page 79)

Plan and Equipment Standards for Orthopedic Units

C. H. Woodruff[1]

About to begin an extensive gymnasium building program, the Long Beach, Calif., schools have recently made a careful study of construction standards for gymnasiums, grandstands, swimming pools, and up-to-date orthopedic units. Their findings, applicable anywhere, should be of interest. Those pertaining to orthopedics are here offered not only for their modernity, but also for their completeness.

Orthopedic units should be located if possible on the ground floor. It is desirable that they include an orthopedic gymnasium, facilities for first aid, and cot rooms and sun decks with a south or east exposure.

The office for supervisory purposes should be located in such manner as to give an unobstructed view of the main orthopedic gymnasium, the cot room, and if one exists, the sun deck. Sliding glass panels between the office and the other rooms are desirable; they should be provided with inside safety catches.

The main orthopedic gymnasium should be arranged to permit the installation of all needed apparatus, black boards and bulletin boards, and built-in foot mirrors.

The first-aid room should be adjacent to the orthopedic instructor's office, yet available for instant use from the main locker room. It is important that it abut on an outside wall where natural light is good and ambulance service can be directly available.

Toilets should be located adjacent to the first-aid room. Specifications include good ventilation and necessary facilities.

Exclusive of hallways, over-all space allotments are desirable as follows:

Junior High Schools	2075 sq. ft.
Senior High Schools	2775 sq. ft.
Junior College	2975 sq. ft.

The square footage required for cot rooms, sun decks, examination rooms, offices, toilets, and storage should be first allotted, and then the remainder of the space should be assigned for a maximum size orthopedic gymnasium.

Floors in this main orthopedic gymnasium room should be constructed of northern hard maple 1½ by 13/16 in., tongue and groove sides and ends, and finished with a standard nonslip floor finish. Desired floor markings should be painted before the finish is applied. Floors in cot rooms, first-aid rooms, and offices serve best when constructed of asphalt tile laid in mastic, colored to harmonize with walls and ceilings. The sun deck floor should be of cement with a nonslip surface of a crushed carborundum finish coat. First aid rooms should have tiled floors and wainscots; hallways should have asphalt tile, which is colorful, quiet, and comfortable.

Walls should meet the following specifications:

A. *The Main Orthopedic Gymnasium*
1. A 6-in. metal cove base
2. Wainscot, to 6-ft. height, 13/16-in. tongue and groove fir or other durable material such as 1/2-in. Masonite
3. 24-in. strip board cork bulletin boards above wainscoting where windows, doors, or apparatus do not interfere
4. Sound absorbing treatment from bulletin boards to ceiling

B. *First Aid Rooms*
1. Linowall tile, smooth and troweled hard wall plaster or similar material to door trim height
2. Acoustically treated walls from wainscot to ceiling
3. Glazed tile in wainscot

C. *Cot Rooms, Offices*
1. Hard wall plaster to door trim height; acoustical treatment from door trim to ceiling

The ceiling heights recommended are: gymnasium, 14 ft.; cot room, 12 ft.; first aid room and office, 9 ft. 6 in. The material used should be acoustically treated, permit frequent cleaning, and finished to reflect light to 60 per cent. The orthopedic gymnasium room ceiling should be made to carry four climbing ropes and two horizontal ladders.

Windows and skylights should have north exposure; glass should be unbreakable or wire glass. Small panels, to cut the expense of replacement, are preferable. The windows in the gymnasium should be placed above the door trim level and mechanically controlled in gangs by recessed shaft and worm gears. Light from outside in the cot room should be controlled by the use of venetian blinds — opened to admit sunlight, closed to encourage sleep. Artificial lighting should be fluorescent, thoroughly diffused, 30 foot-candle power in the gymnasium, office, and first-aid rooms. Ten foot-candle power suffices in the cot rooms.

Heating is best supplied by overhead forced air fan, blowing over steam radiators with directional controls. Ample units should be installed in the gymnasium, cot rooms, first aid room, and office. Cross ventilation in all units is desirable, and is attainable through the use of north windows and manually operated all-weather louvers in all other walls and skylights. A mechanical forced ventilation system can be substituted where the natural ventilation is not possible.

Electric installations in the orthopedic gymnasium may well include:

1. One electric clock recessed and protected, in full view
2. Connection with all central intercommunication and bell systems
3. Shaded, protected light over triple mirror
4. Double electrical outlet on each of four walls

Similar electrical installations are needed in the cot room and in the first-aid room. A recessed, lighted eye chart, 20-ft. reading distance, is desirable in the cot room. By the use of mirrors 20-ft. readings can be made in a 10-ft. space.

Recessed storage space is preferable to closet storage. Recessed storage space in the orthopedic gym should care not only for mats, but also for Indian clubs, dumbbells, wands, shuffleboard cues and disks, record player and records, and other apparatus. The recessed storage space in the cot rooms should be large enough to care for one pillow, two blankets, two pillow cases, and two sheets for each cot. Storage space in the first-aid room should be ample to care for all needed supplies.

Floor space requirements include: 40 sq. ft. per cot in the cot room; a minimum of 120 sq. ft. for the first-aid room; and 100 sq. ft. for the office.

The basic items of equipment needed for the orthopedics gymnasium include horizontal ladders, mats, climbing ropes, stall bars and stall bar benches, balance beams, triple mirror, and foot mirror. Usually, other apparatus is neither necessary nor desirable, since too much equipment discourages home exercises.

[1]Long Beach, Calif.

Color Planning for School Interiors

*M. Pleason**

Hereafter, when painters go to work redecorating the interiors of St. Paul, Minn., public schools, they will not merely apply a fresh coat of the same old color, or paint all of an interior in one color; nor will they follow a color scheme that has been chosen ready-made from a collection of standardized color schemes.

Instead, they will follow color schemes designed specifically for each room or other area by designers who chose, from a variety of colors and color values, those best fitted, under the given conditions, to create an environment favorable to the visual comfort and the physical and mental well-being of those who use the interior.

This improvement has resulted from a definite program for color planning in school decoration. Following is an account of that program — its beginning and development, its aims and procedures.

This account may have timely interest elsewhere. Extensive programs for repainting school interiors are necessary in many private and public schools, owing in part to wartime curtailment of paint programs. In this postwar necessity lies an opportunity to improve the color schemes by a program of color planning for school interiors.

Beginning of Program

The St. Paul program began early in 1945, soon after the establishment in that city of the position of assistant superintendent in charge of business affairs. The appointee to that post, William C. Davini, proposed that the needed repainting of school interiors should not be done perfunctorily, as a mere "repaint job," but should be approached as a problem in creating school environments that would be in accordance with the best and latest knowledge obtainable from the fields of science, art, industrial research, and educational administration.

Approval of this proposal by the commissioner of education, Fred M. Truax, and the superintendent of schools, James E. Marshall, started the program on its way.

Development of Program

Davini first made an inspection trip to other sections of the country. In many cities he noted a definite intent to have done with drab and monotonous interiors, to favor generally, though not exclusively, the use of lighter colors, and to give more consideration to the relationship of color to the lighting, architectural design, and educational function of each interior. This tendency was in line with developments in larger industrial organizations, where the color schemes of factory interiors were planned with relationship to such factors as fatigue, accident prevention, and morale.

Upon his return to St. Paul, Davini assembled an informal advisory committee of persons whose interests would naturally lend themselves to constructive discussion of problems in painting school interiors. The committee's membership includes an eye specialist; the director of the St. Paul art gallery and a member of the art education faculty of the University of Minnesota; the supervisors of art, home economics, and kindergartens, a principal, the paint foreman, and interested instructors from St. Paul public schools; the health chairman of the parent-teacher council, and a city librarian. (Meetings are held during school hours, to avoid imposing upon teachers in their out-of-school hours.)

With members of this committee, Davini discussed his observations in other cities. The supervisor of kindergartens, Elizabeth Newton, had long urged more colorful interiors for kindergartens; Principal William Scanlon, in the redecoration of a music room, had broken away from the tradition of monotonous interiors by using harmonious color combinations as well as murals.

Committee members assisted in planning color schemes for approximately ten buildings. In them, faded monotones have given way to lighter colors, variously combined and accented here and there with a darker color, to produce a cheerful yet restful atmosphere which is also efficient because it meets environmental needs.

Guiding Principles

Gradually, the following ideas have shaped up as guiding principles.

1. *The approach.* The repainting of school interiors is not approached as a glorified "paint-and-clean-up" job, aimed primarily at covering up the marks of wear or "freshening up" a faded interior. While these desirable ends are accomplished by the repainting, they do not provide adequate motivation for selecting one color or color combination rather than another. The task of interior decoration is approached as a problem in the use of color to create the most efficient and attractive school environment possible under the given conditions of light, structure, and purpose of the interior, etc.

2. *Use of color.* To shy away from colorful interiors is to neglect the resources that colors provide for creation of efficient school interiors. To use only one color leads to disregard the light-reflection factor in paint colors and of human reactions to color and color harmonies and contrasts. Therefore, in the painting of St. Paul school interiors, a variety of hues and values are drawn upon.

3. *Range of colors.* The needed variety is generally to be found in a range of colors from medium to light, but darker colors are not arbitrarily ruled out. They are useful — sometimes on small areas to provide accentuation in the color scheme, a momentary eye-rest surface, or a background; occasionally, for a principal color in the total color scheme.

4. *Color planning.* To apply a "ready-made" color scheme wholesale throughout a building results in monotony and in disregard of varying conditions of light, room design, etc. To be guided merely by the desire to use "lots of color," particularly those one likes, leads to "artiness" and improper subordination of the visual comfort of teachers and pupils. The color scheme must be planned. By planning is here meant study of the environmental factors of each interior, and selection of colors and color combinations in accordance with the results of such study, with a view to achieving the optimum in efficiency and attractiveness.

Environmental Factors

Emphasis upon the idea of using color to create efficient school environments has led to the stressing of several factors which will be summarily mentioned here without detailed discussion.

1. *The physics of color.* The paint colors applied to interior surfaces are not merely "a color scheme"; they are part of the lighting system of that interior, because they will determine how much of the available light is absorbed by the painted surfaces, how much is reflected or turned back into the room, and, in part, how the light is distributed. All this follows from the physics of light and color. It is to be remembered, also, that the various types of artificial illumination affect colors in different ways.

2. *Physiology and psychology of color.* The colors and color combinations (as well as the finish) continuously affect the physical energies and mental states of the persons using an interior, by reason of: (1) the nervous energy required for muscular adjustments of the eye to differences in brightness values, resistance to distraction from a sharp color contrast in the field of vision, or body efforts to avoid deflected light rays (glare) from glossy surfaces; (2) the feelings with which people respond to colors, as when, under some circumstances, they describe blue as cool and restful, but under others as cold and depressing.

3. *Color and structure.* In designing the color scheme, the interior is to be thought of *as a shape,* and not merely in terms of a number of flat surfaces. From this viewpoint, it becomes perfectly natural sometimes to carry a light color, with its receding effect, from one of the side walls up on to the ceiling, in order to enhance the architectural

*Art instructor, Wilson High School, St. Paul, Minn. Mr. Pleason is a member of the advisory committee described in this article.

design or to improve the apparent proportions of a badly proportioned interior in which the ceiling seems too low. Similarly, in a long, narrow room, the two end walls may be "drawn in" by painting them a more intense color than the side walls.

4. *Color adaptation to human activities and educational purpose.* The activities for which a room is used, the equipment and its arrangement are properly drawn into consideration in planning the color scheme. Thus, color planning for the machine shop does not stop with consideration of walls and ceilings but extends to the machines and the activities which take place there, and seeks to promote efficiency and safety by providing proper brightness ratios within the field of close visual work and accentuation of control levers and operating parts.

Imagination and artistic training and experience are recognized in the St. Paul program as invaluable, but the four factors enumerated above are stressed as governing conditions by which the artist must guide and check his designing of color schemes.

For detailed discussion of these factors, the reader is referred to past articles, with their bibliographies, in the AMERICAN SCHOOL BOARD JOURNAL;[1] *The Industrial Arts Index*;[2] reports on investigations directed by D. B. Harmon of the Texas State Department of Health;[3] the address of J. C. Thompson to the Association of School Business Officials;[4] and the brochure on color issued by Superintendent Hynds in New York City.[5]

Role of School Principal

Success in planning requires recognition of proper administrative procedures. Good procedure requires that the principal, as chief administrative officer of the school, with overall responsibility for environmental factors, should occupy a key position with respect to school decoration. In the St. Paul program, the request for repainting and final recommendations as to colors come from his office.

Within this framework, practice varies, some principals participating more than others in the planning. One principal met with the teachers, together they set up a committee informally representative of teachers, pupils, and parents, and she participated actively in the work of this committee. Incidentally, this principal reported that it was the parents on her committee who were most mindful of the thought that attractive buildings would foster good school spirit, more pride in schoolwork, and better behavior.

Administrative Assistance

A second problem of good procedure concerns the extent to which interior decoration shall be standardized throughout a school system. The St. Paul program steers a middle course between the extremes of either rigorous system-wide standardization or complete *laissez faire*.

On the one hand, as already explained, each school building is regarded as an individual unit, and ready-made color schemes, from which one must be chosen are not prescribed.

On the other hand, choice of colors is limited to selection from a standardized list of "available colors." (This list has not been finally determined.) Such system-wide standardization makes for economy and efficiency in ordering and using paints and promotes sound color planning by reducing uncertainty about approximate reflective values and how a particular paint color will "turn out." The restriction will not be a strait jacket, because the range of available hues and values is sufficiently broad to permit variety of treatment, adaptation to special circumstances, and satisfaction of color preferences.

The central school administration will also provide to any school engaged in planning a paint program a printed manual and the services of the advisory committee. The manual contains a few guiding principles, some helpful practical pointers, and samples of the available colors. The advisory committee will, upon request of a principal, send representatives to the building to assist in studying the environmental factors and planning the color schemes accordingly. The system-wide element here takes the form of administrative assistance and co-operation, rather than regulation imposed for the purpose of restricting color choices to predetermined patterns. While each school is an individual unit, it is also part of a larger school system from which benefits may be drawn.

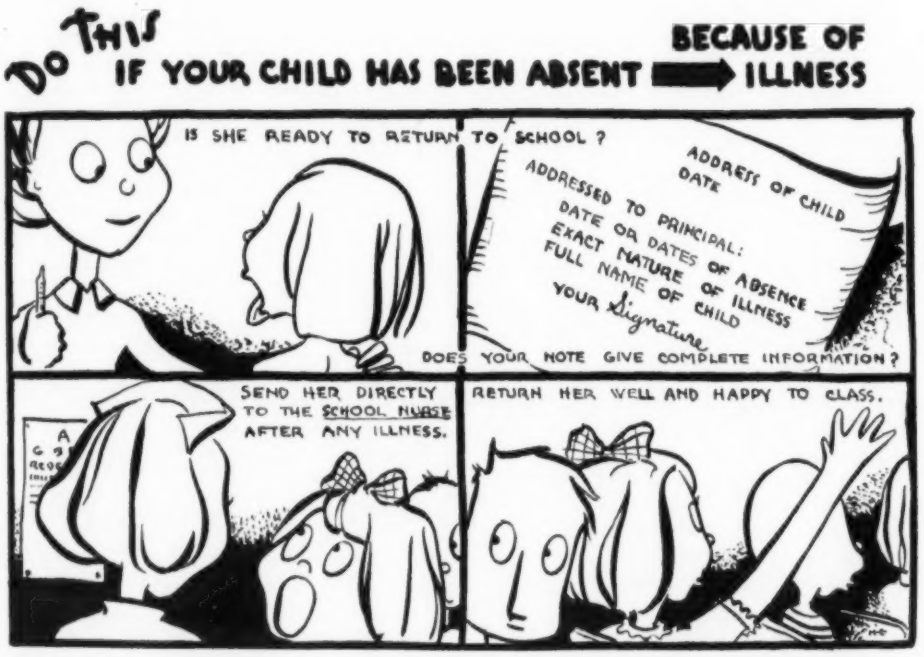
Participation in Planning

Consultation with teachers and custodians is regarded, in the St. Paul program, as another essential to good procedure in color planning.

Teachers have firsthand experience with the relation of the color scheme to the activities of the schoolroom, and firsthand observations as to reactions of pupils to the existing color scheme. Teachers of art and of home economics are often keenly aware of the best thought as to interior decoration. Consultation with the science teacher may be extremely worth while, for the nature of light and color and the principles of optics are important topics in the subject of physics.

Consultation with building custodians is likely to provide ideas of practical value which others often overlook.

Consultation, in one form or another, has played an important role in the St. Paul program from its inception, and this review of that program may fittingly close with emphasis upon that point. A desire to explore and learn from the experiences, ideas, and special knowledge of others prompted the study of practices in other school systems, the deliberations of the local advisory committee, and conferences with the occupants of each building where redecoration was planned. As a consequence, the enduring accomplishments of the program include not only the redecoration of school interiors, but also, for those who participated in the program, the acquisition of new knowledge from various fields and the development of fresh understandings of educational needs and opportunities.


DO THIS
IF YOUR CHILD HAS BEEN ABSENT
BECAUSE OF
ILLNESS
IS SHE READY TO RETURN TO SCHOOL ?
ADDRESS OF CHILD
DATE
ADDRESSED TO PRINCIPAL:
DATE OR DATES OF ABSENCE
EXACT NATURE OF ILLNESS
FULL NAME OF CHILD
YOUR Signature
DOES YOUR NOTE GIVE COMPLETE INFORMATION?
SEND HER DIRECTLY TO THE SCHOOL NURSE AFTER ANY ILLNESS.
RETURN HER WELL AND HAPPY TO CLASS.

The schools at Burbank, Illinois (Mr. J. R. Croad, Superintendent of Schools), use the above cartoon as a means of helping parents return their children safe and well after an illness.

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[1] AMERICAN SCHOOL BOARD JOURNAL: "The Crusade for Color," John Sharpe Warren, Jan., 1945; "Seeing in the Schoolhouse," Wm. G. Darley, Aug., 1945; "New Light on School Lighting," R. L. Biesele, Jr., July, 1946; "Something New in School Health," Frank L. Williams, Aug., 1946.

[2] A subject index to selected list of engineering, trade, and business periodicals, published annually by H. W. Wilson Co., N. Y.

[3] "Light and Child Development," *Illuminating Engineering*, Apr., 1945; "Light on Growing Children," *Architectural Record*, Feb., 1946; both by D. B. Harmon.

[4] *Proceedings*, 1946 annual meeting of Association of School Business Officials, pp. 175–191.

[5] *Paint Colors*, Bureau of Plant Operation and Maintenance (Harold D. Hynds, Supt.), board of education, city of New York, 1944.

Odyssey Toward Quality—II

William G. Darley[1]

(The present article is the second half of a paper begun in the December issue of the JOURNAL. *The first half discussed the problems of illuminating schools with incandescent lamps.)*

So ended the recounting of our odyssey based on good practice for filament lamps. While we have covered considerable ground, the 50 ft-c high point still leaves us some distance from best light, quantity-wise. But quality-wise, we have learned much. The bars to further progress toward best light (Fig. 1) with filament lamps lie in the problems of the power required to push on and the heat which the power develops.

While the fluorescent (F) lamp hurdles the bars of power and heat at 50 ft-c, fluorescent lighting offers little that is startlingly new, with one exception. This important exception is, that as the illumination increases above 30 ft-c, the brightness of the bare F lamp in the R zone becomes progressively less of a negative factor. This permits a far more efficient direct utilization of the light from the lamp than is the case with the filament lamp which requires that most or all of the light be redirected before reaching the task. Let us see how fluorescent lighting fits into the pattern which has been plotted, keeping in mind that the F lamp systems are producing a higher quantity of light (more footcandles) than the filament lamp systems to which they are compared (also see Fig. 1).

Bare F Lamps

The brightness of the F lamps in general use today is about equal to that of overly bright enclosing globes; e.g., 1750 ft-l for the 40-watt, 1½-in. diameter, 4 ft. long, 3500° white F lamp. The brightness values published for the F lamps are for crosswise viewing, as shown on the left in Figure 11. The brightness of the lamp is reduced when viewed lengthwise at angles less than 90°. See right-hand sketch of Figure 11. The glare effect is sensibly greater for crosswise viewing than for lengthwise viewing.

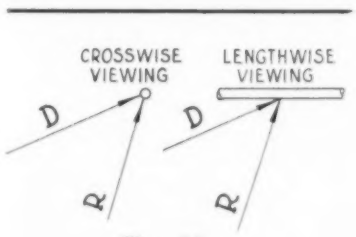


Fig. 11

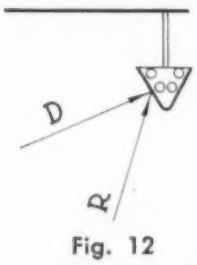


Fig. 12

Bare F lamp lighting is comparable to that with enclosing globes. Sometimes it is better, sometimes it is worse. It is likely to be better if the lamps are so located that the room occupants view the lamps lengthwise rather than crosswise. Since enclosing globes have not been recommended for classroom lighting for ten years or more (and even then their brightness was limited to 1125 ft-l), it is obvious that bare F lamps are not suitable for use in classrooms.

"V" Glass F Units

The fact that bare F lamps are too bright for use in classrooms, offices, drafting rooms, etc., was appreciated by many in the very earliest days of fluorescent lighting. There was, therefore, a considerable demand that F lamps be "shielded" when applied in areas devoted to prolonged and critical seeing. Unfortunately, much of the demand for shielding was not accompanied by an appreciation of the technicalities involved. As a result, many units were made which were "shielded" but which did not provide commensurate brightness protection. As a matter of fact, in one instance a plastic "shield" was used which reduced the output of the unit more than it did the brightness of the lamps.

[1] Illuminating Engineer and Lighting Consultant, Austin, Tex.

If one looks at an F lamp located behind a configurated or ribbed panel of glass, it will be found in general that the lamp is brightest when the line of sight is perpendicular to the plane of the panel.[8] The brightness diminishes as the lamp is seen through the panel at more and more of a grazing angle. The "V" glass F units, typified by Figure 12, have their side panels positioned so that they are perpendicular to the line of sight in some part of the D zone and brightnesses of 1200 ft-l are common in this zone. Often the R zone may be favored with a lower brightness. This is a reversal of the afore-mentioned fundamental condition. Lighting with such units is comparable to that with some types of enclosing globes. It is usually best to mount the units so that they are viewed lengthwise.

URC F Units

The Utilities Research Commission of Chicago has designed a unit which takes advantage of the diminution in brightness as the lamp is seen through a glass panel at an angle. This unit (Fig. 13) combines a ribbed glass bottom panel, which permits

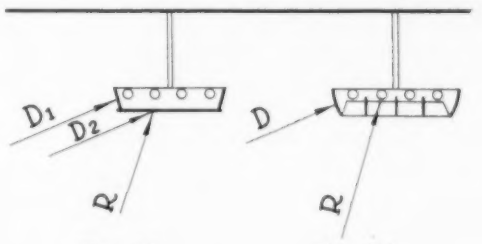


Fig. 13

Fig. 14

light from the lamps to pass efficiently to the work plane, and an enameled glass side panel, which presents a relatively low (300–400 ft-l) brightness in the D zone. The lamps are seen through the ribbed bottom glass in the critical angles of the D zone at grazing angles, and hence the brightness of this panel is of a low order at these angles. The panel does provide brightness protection. In the R zone, the brightness of the bottom panel (1350–1700 ft-l) is somewhat less than that of the bare F lamps.

The units are available with either an open or closed top. For the classrooms, it is advantageous to use the open top unit suspended from the ceiling. Installed in this way, lighting with these units is quite comparable to that provided by semi-indirect luminaires for filament lamps. When the closed top units are used, or units are mounted at the ceiling, the lighting effect is somewhat similar to that achieved by enclosing globes with shades. It is generally best to install the URC F units so that they are viewed lengthwise.

Louvered F Units

Brightness protection can also be incorporated into a luminaire by using louvers, which are most often made of flat metal strips (Fig. 14). Unfortunately again, the use of a louver is not a guarantee that the unit provides brightness protection. Some units seem to have louvers added for appearance or sales appeal only, since they do very little to conceal the lamps throughout the more critical angles of the D zone.

Very satisfactory units of this type have been made using translucent side panels with a brightnesss of 100–200 ft-l, with louvers having a brightness of the order of 400 ft-l providing 45° shielding for crosswise viewing and 30° shielding for lengthwise viewing. The brightness of the lamps prevails in the R zone. When open top units of this type are used suspended from

[8] "The Design of Luminaires for Fluorescent Lamps," *Illuminating Engineering*, Nov., 1940 (Vol. XXXV, No. 9), p. 759.

the ceiling, the lighting effect is comparable to that with the better semi-indirect units using filament lamps. As a rule, good units of this type may be safely mounted for either crosswise or lengthwise viewing.

An interesting variation of the louvered type of unit is shown in Figure 15. As installed in one room of the Caledonia Grade School in East Cleveland, Ohio, the outside of the unit was painted white and the inside aluminum. The side panels served as louvers providing 45° shielding for crosswise viewing, while transverse braces provided 30° shielding for lengthwise viewing. The units were installed crosswise to the line of sight. The brightness of the ceiling (D_1) and of the outside of the unit (D_2) proved to be of the same order as the 13–35 ft-l of the inside of the reflector (D_3), and all brightnesses in the critical angles of the D zone were lower than the brightness of white paper on the desk tops.

This is the only installation with which the author is acquainted which employs a large area, low brightness source, where the actual source area providing the light to the work plane appears

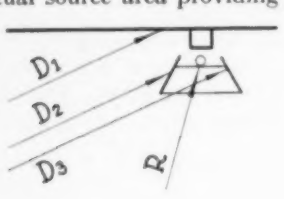


Fig. 15

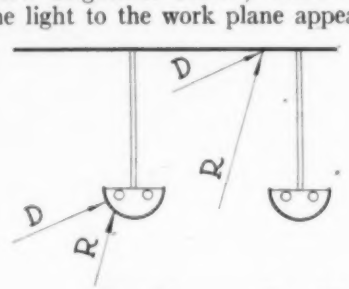


Fig. 16 Fig. 17

to be lower in brightness than its surroundings when viewed in the critical angles of the D zone. This system represents the ultimate refinement of lighting employing "Shades or Bowls." It offers one of the best technical approaches to the creation of the ideal brightness environment.

Semi-Indirect F Units

As with units of this type for filament lamps, a considerable spread is found. Brightnesses in the D and R zones (Fig. 16) range from 200 to 400 ft-l. Even with the lower brightness units, it is desirable to mount the luminaires so that they are viewed lengthwise. So installed, the lighting effect with the lower brightness units approaches that with semi-indirect luminaires of the best type for filament lamps.

Indirect F Units

Most indirect F units utilize opaque reflectors (Fig. 17). With these, there is some improvement over the quality of lighting provided by indirect units using filament lamps. There is an advantage to mounting the units crosswise to the line of sight, since each unit serves as a louver for the (100–200 ft-l) ceiling beyond it. In a large installation, this results in only the bottoms of the more distant fixtures being seen in the critical angles of the D zone. This form of lighting closely approximates that provided by contiguous coffers.

Troffers

Recessed units for F lamps look like inverted troughs. Early units of this type with white reflecting surfaces (Fig. 18) installed in continuous rows, provided a quality of lighting resembling, though slightly better than, coffer lighting (reflector brightness ranged from 50 to 250 ft-l with 45/30 brightness protection). Hence the name trough-coffer, or troffer. As with the louvered unit shown in Figure 15, the reflector surfaces serve as shielding for crosswise viewing, while transverse louvers provide shielding for lengthwise viewing.

Many troffers have been designed more with enthusiasm than with an appreciation of the technical functions of the component parts. Troffers are available, therefore, in a wide variety of designs which range from units providing very little if any brightness protection (very shallow, open, unlouvered units) to those providing very nearly the optimum brightness levels in the critical angles of the D zone.

Lighting from well-designed troffers having white reflecting surfaces has been criticized because of the high brightness difference existing between the walls of the troffer and the unlighted ceiling — as was the case with coffers. When aluminum reflecting surfaces are used, the brightness of the troffer (Fig. 19) is so low, that this ceases to be a serious objection (in critical angles of the D zone reflector brightness is 15 to 35 ft-l). Continuous rows of well-louvered aluminum troffers on three-foot centers provide a quality of lighting somewhat superior to that provided by contiguous coffers.

Unless there is daylight in the room, or unless horizontal surfaces in the room are light in color (as they should be), the relatively low brightness of the ceiling with an aluminum troffer installation may still be considered a drawback. While the use of the louvered unit shown in Figure 15 does not result in an

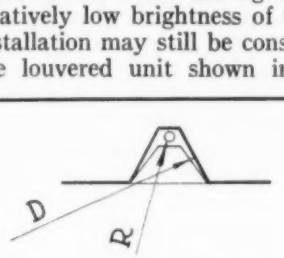


Fig. 18

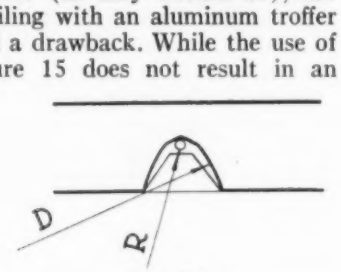


Fig. 19

installation having the finesse of a troffer installation, it does provide the near optimum brightness in the D zone without the "dark" ceiling. The problem of the dark ceiling has also been overcome by installing continuous rows of aluminum troffers contiguously — so that the entire ceiling was covered with troffers. Such a system is quite efficient and provides levels of illumination which require all of the skill of the seeing specialist if they are to be made comfortable. Such installations are worthy of consideration for classrooms for the visually handicapped (sight saving classrooms).

Louvered Ceilings

An interesting variation of troffer lighting is illustrated by Figure 20. In this case, the building structure is considered with regard to the lighting requirements. In one instance, lamps were installed in every space between beams. The effect was quite similar to that obtained with contiguous coffers.

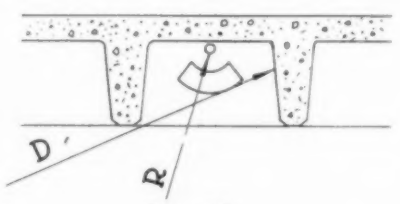


Fig. 20

A comparable effect has been obtained by installing continuous rows of F lamps on a flat ceiling and suspending louvers, which extend over all of the ceiling, under the lamps.

This review of the odyssey of good lighting practice toward quality has been brief and incomplete. Its purpose, however, is to point out some of the high lights of the journey and the causes for some of the changes in route. It should help to dispel any notions that filament lamp lighting is either good or bad, or that F lamp lighting is either good or bad. And it may help in the selection of lighting which reflects our progress to date instead of lighting which will be outmoded before the fixtures are hung.

The influences of direct and reflected glare have been shown as factors motivating the developments which have resulted in improvements in the quality of lighting. The full significance of these factors, however, was never even grasped until quite recently. Had it been appreciated early in the century, we could have taken the quality straight-a-way (Fig. 1) to best light, and we might well be much farther along the road — quantity-wise as well as quality-wise. While this discussion is not intended as a stentorious display of hindsight, let us hope that we can learn by past experience — that we can take the time to get off the rugged road to quantity onto the smooth road to quality, even if for a spell the foot-candle front is stabilized.

Anticipatory School Site Selection and Purchase

N. L. Engelhardt[1]

During the year 1947, the board of education in New York City selected a certain number of school sites in anticipation of future needs. The policy has been followed for several reasons:

a) If sites are not selected in advance of immediate needs, the chances are that only open land is left which has not been found suitable for other purposes as areas have become built-up.

b) Less adequate sites result unless choice is made previous to other developments. Thus play areas tend to become less than adequate or satisfactory.

c) When other developments have preceded the schools, fewer choices of sites are left and the final choice may not fit well into a total pattern for the larger area to be served.

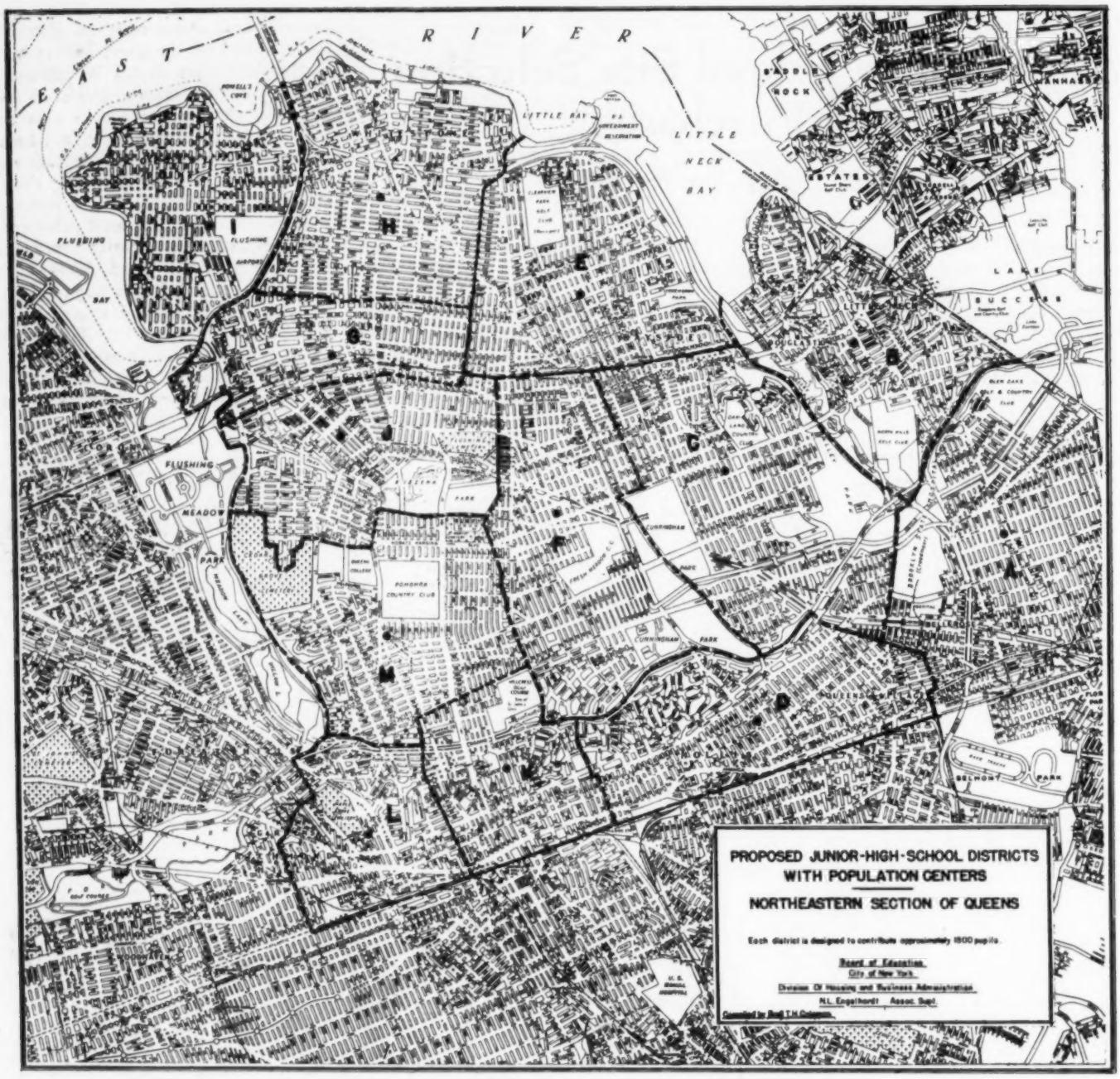
d) School sites should be selected in the light of accepted criteria. Denial of several if not all of these criteria results when selection in advance of development has not been made.

e) The rapidity of new housing construction of the present day frequently shuts off all choice unless advance selection is encouraged.

New York City, like most other communities is experiencing extensive developments in its many outlying areas. Small one-family homes or rows of homes seem to cover the landscape, as though by magic. To be sure permits are issued and may be analyzed, but today construction follows closely, in many cases, the issuance of permits. Thus present-day conditions present new urges to early site selection.

[1]Consultant in Schoolhouse Planning, New York, N. Y.

Map 1 — Elementary School Districts With Population Centers.



Map 2 — Proposed Junior High School Districts With Population Centers.

The arguments against such action can be consolidated in the theory that early selection removes taxables from the assessment rolls. This is undoubtedly true. A delayed and hurried selection, however, jeopardizes the adequacy of a school site. In no way can this be prevented except through much higher payments for land, planned for development or partially or totally covered with new housing.

The differences in school site values between built-up areas and sections in which residential housing has not yet appeared are shown in the following tabulation. Here are contrasted real estate appraisal values on school sites recently approved by the New York City board of education in highly saturated residential areas as well as in sections of limited construction to date. The low costs per square foot in the latter areas emphasize the desirability of site selection in anticipation of needs of an early future period.

ENCUMBERED SITES SELECTED BY THE BOARD OF EDUCATION IN DEVELOPED AREAS

School	*Number of encumbrances*	*Cost/sq. ft.*
111 Queens	11	$ .86
171 Queens	18	1.60
195 Brooklyn	2	1.40
77 Brooklyn	1	2.18
240 Brooklyn	33	1.97
249 Brooklyn	15	2.37
125 Bronx	11	1.07

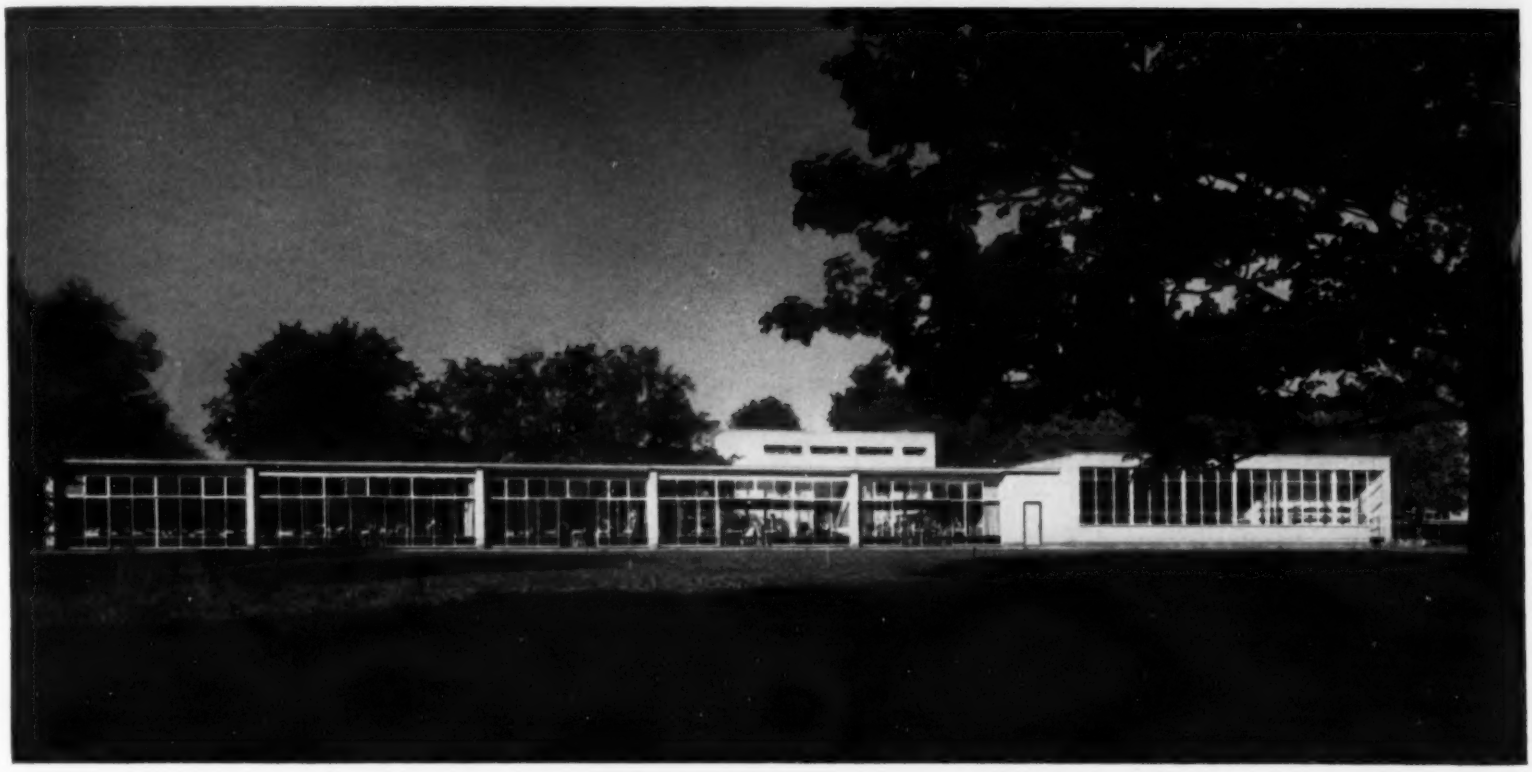
High unit costs of sites in built-up areas make it difficult and often impossible to select adequate sites in such areas. As a result, the board of education has had little choice but to accept curtailed sites upon which are planned buildings with cramped facilities and insufficient play space.

To prevent recurrence of the necessity for selecting limited sites at high cost for future schools, rapidly growing sections of the city have been studied with a view toward the acquisition of school sites well in advance of residential development.

(Concluded on page 73)

VACANT OR PARTIALLY VACANT SITES SELECTED BY THE BOARD OF EDUCATION IN UNDEVELOPED AREAS

School	*Average cost/sq. ft.*
176 Queens	$ .10
174 Queens	.37
173 Queens	.12
115 Queens	.11
165 Queens	.18
177 Queens	.08
167 Queens	.23
178 Queens	.28
46 Queens	.13
175 Queens	.60
172 Queens	.16
98 Brooklyn	.54
24 Bronx	.51



1. Classroom Wing, Village College, Impington, Cambridgeshire, England.
(Photos Copyright Architectural Review, London.)

The Village Colleges of Cambridgeshire

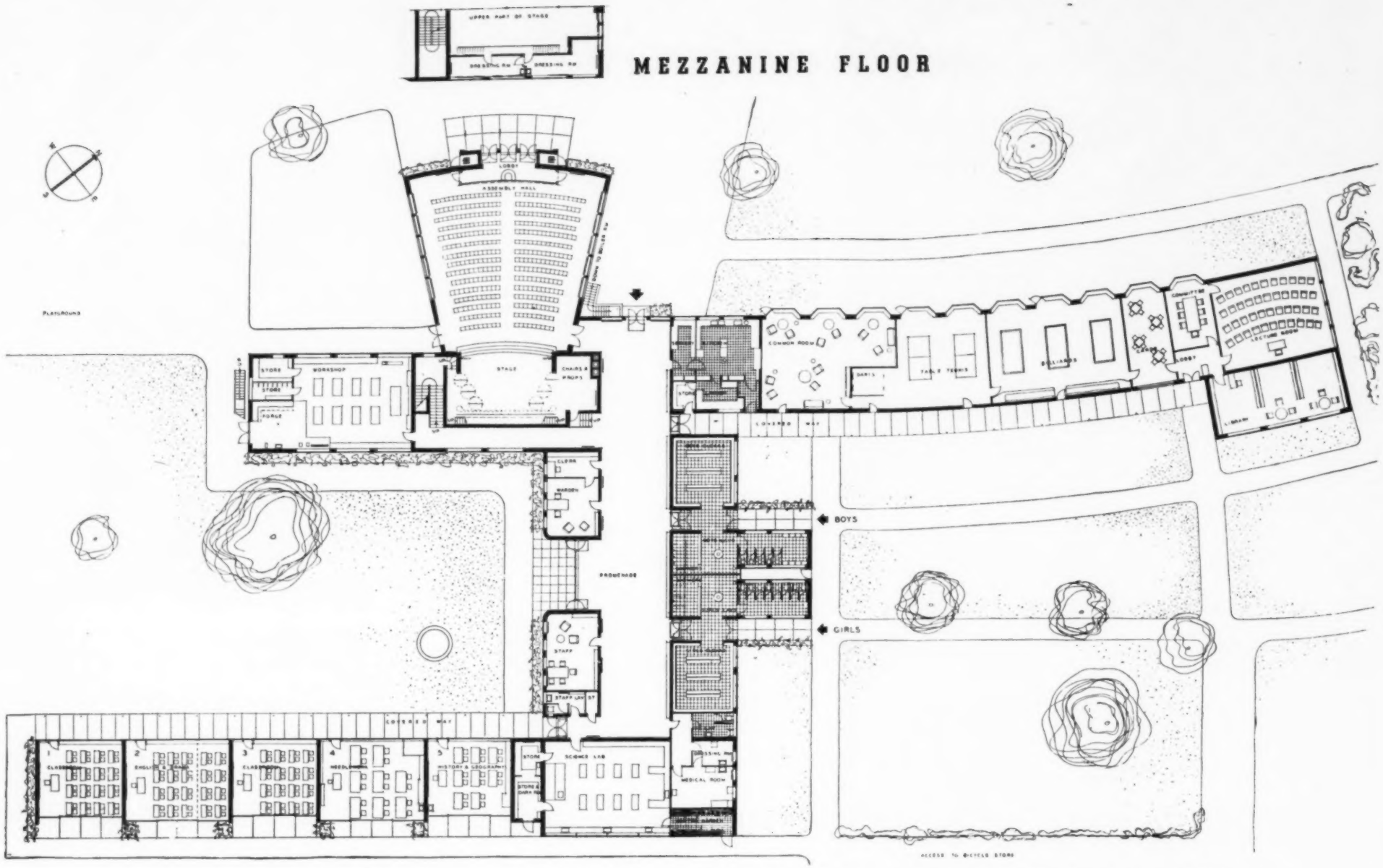
David Norton Yerkes

In 1924 a young Englishman named Henry Morris wrote an article entitled "The Village College." It was published as a pamphlet by the Cambridge University Press, and it was the first blow in a fight to which Morris has devoted most of his life — a fight for better educational and social opportunities in the rural villages of England. Morris won the opening round of his war with rural backwardness when the first of the Cambridgeshire Village Colleges was finally built in 1930. Since then three other colleges have been opened and the battle is well on the way to being won.

The conditions which aroused Morris have many parallels in the United States. In both countries there has been a steady drift of population from country villages to cities and towns. The dual cause has been the lure of employment in urban factories and offices, and the chance for better education and a richer social and recreational life in the cities. Many of the most enterprising young men and women, especially, have been permanently lost by their native villages.

The result of this process has been a vicious circle leading always to more limited opportunities for the country dweller. As the country lost its ablest young people to the city, it became increasingly diffi-

2. The bookshelves and furniture of the library are especially designed for the building.



3. Floor Plans, Village College, Impington, Cambridgeshire, England. — Maxwell Fry, London, and Walter Gropius, Architects.

4. Auditorium and Shop Wing, Village College, Impington, Cambridgeshire, England.

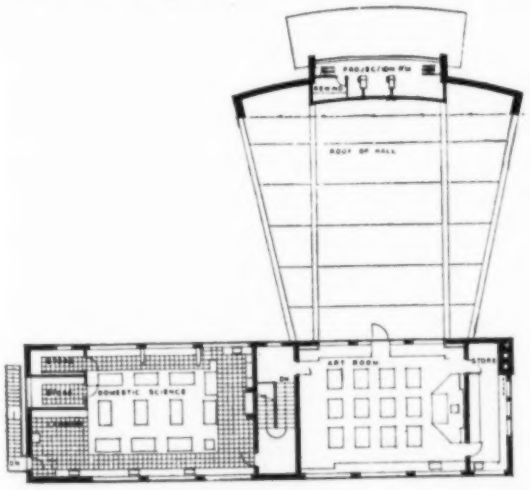
cult to maintain the few rural educational and social facilities that existed, not to speak of adding new ones. The spirit of community fellowship, independence, and initiative, declined in the villages. Progress in agricultural methods lagged, while urban industry, using new techniques, constantly expanded into new fields. The effect was to speed the exodus of ambitious youth. When Morris first proposed his plan the prospect confronting the average country child, both in the United States and England, was not promising. He could attend a one-room school until he was 15 or 16, possibly studying with the same teacher all the time. During his last years in school much of the work might be repetitious. He was unusually lucky if he had a really good teacher. With graduation from the one-room school the child's opportunities for formal education in the country were at an end; and there was little stimulus ahead to encourage an active intellectual, social, recreational, or business life. Today the regional schools here and in England have improved this situation partially, but in many areas there has been little change.

Rapid transportation, which some day may be the salvation of the countryside, has worked against it in some ways. It has tended to increase the dependence of the village on the city by placing urban advantages within occasional reach of some country dwellers. But it has not provided a substitute for the independent and creative community spirit which the villages have very often failed to maintain. "The history of civilization, it has been said, is the history of progressive towns dragging in their wake a reluctant countryside."

Like many others in England and the United States, Henry Morris believed that "our civilization must, if it is to be healthy, always remain based upon and the product of two cultures, an urban one and a rural one." To achieve the balance it was obvious that steps should be taken to instill new vigor into the rural community in two ways — by making it possible to earn a better living, and by making life in the country more interesting and stimulating.

The Village College Plan was Morris' solution to the educational, social, and to some extent the economic problems of the country. It embodied two theories which Morris believed fundamental; that formal education should continue throughout life, and that it should be an integral part of daily living, not a specialized activity to be carried on in a classroom for a specified number of years, then ignored. The Village College, as Morris visualized it, was to "abolish the duality of education and ordinary life. It would not only be the training ground for the art of living, but the place in which life is lived, the environment of a genuine corporate life." The whole family must participate.

According to Morris the countryside could achieve a full and balanced life independent of the town only by attaching greater importance to the regional aspects of rural life. He wrote: "The only alternative to the complete subordination of the countryside to the town is the adoption of the rural region as a cultural and social



3A. Second Floor Plan, Impington Village College.

5. The domestic science room is used both by children and adults.

DESCRIPTIONS OF ILLUSTRATIONS

1. Classroom Wing From the Southeast

The roof over the classroom wing is carried on bearing walls between the rooms. Exterior walls are thus kept free of piers and columns. Sliding glass doors make it possible to open a large part of the southeast wall in each classroom.

2. Library

Library walls are pale gray green, except for the window wall which is white. Bookcases also are white and are supported well above the floor on tubular metal legs. Lighting fixtures are simple glass spheres suspended from the ceiling. The lecture room, next door to the library, has a fiberboard ceiling and Gaboon mahogany plywood walls. Curtains are sulphur yellow.

3. Plan

The building is planned to accommodate 280 students. All sections can be reached from the promenade. Open covered passageways, which would be impractical in many parts of the United States, lead to classrooms and adult recreation rooms. Three of the five classrooms are equipped for teaching special subjects. In many rooms the ceilings are faced with fiberboard which limits reverberation and does not crack. In the future a gymnasium is to be built which will be connected with the main building by extending the covered way in the classroom wing. The sprawling plan provides maximum light and quiet in study and workrooms. The classrooms, adult wing, and the two-story part of the building, are heated by radiant heating in the floor, which in these rooms and in the promenade is made of compressed wood and composition blocks.

4. View From the West

Exterior walls are rough textured yellow brick. Piers and chimney stacks are brown brick.

5. Workshops and Laboratories

The domestic science room, shown in the photograph, is equipped with a laundry, pantry, and kitchenette. Walls are lined with white tile to a height of about five feet. The workshop contains a forge and the doors are large enough to admit a car.

6. Promenade

A double bank of blue and gray lockers lines one wall of the promenade, which receives natural light through clerestory windows over the roofs of the washrooms and offices. Lighting fixtures are simple cup reflectors which are attached to the wall and throw light upwards. The ceiling is fiberboard painted yellow. Yellow joints add color to the sand lime brick walls. Through sliding hatches, meals can be served from the kitchen to the promenade and the adult common room.

7. Projection Room at the end of the Assembly Hall

The assembly hall is designed for the presentation of movies, lectures, plays, and concerts. Dressing rooms, a cyclorama, and a set of backstage curtains in pivoting and sliding sections, are provided for plays. In the center section of the assembly hall the ceiling is made of hard plaster in flat planes set at varying angles to diffuse reflected sounds. The front of the projection booth is faced with acoustic tile. The wall below the booth is covered with mahogany plywood and the other walls are painted a light gray.

unit, parallel to that of the town. The choice is no longer between village and town, but between the rural region and the town. Unless we can interpose the rural region between the village and the town, the village is doomed, and the victory of the town will be complete."

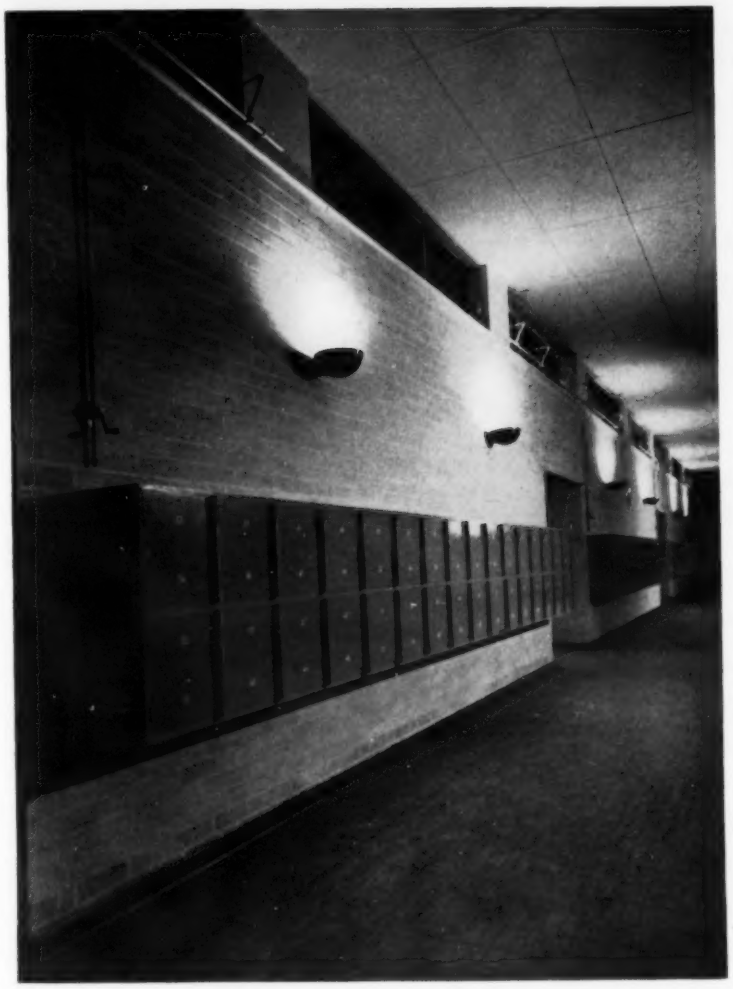
This belief was not original with Morris. Experiments in regionalization had already been made in the United States and England. But Morris developed his theories more completely than most of his predecessors, and he has succeeded in putting many of them into practice.

In its specific proposals, the Village College Plan dealt only with Cambridgeshire. It did not call for important changes in the elementary school system, but it provided for establishing between thirty and forty secondary schools in selected villages. Each of these schools was to serve children between 10 and 15 who lived within a radius of two and a half to three miles. By reducing the total number of schools, better facilities and better teaching could be provided in those that remained.

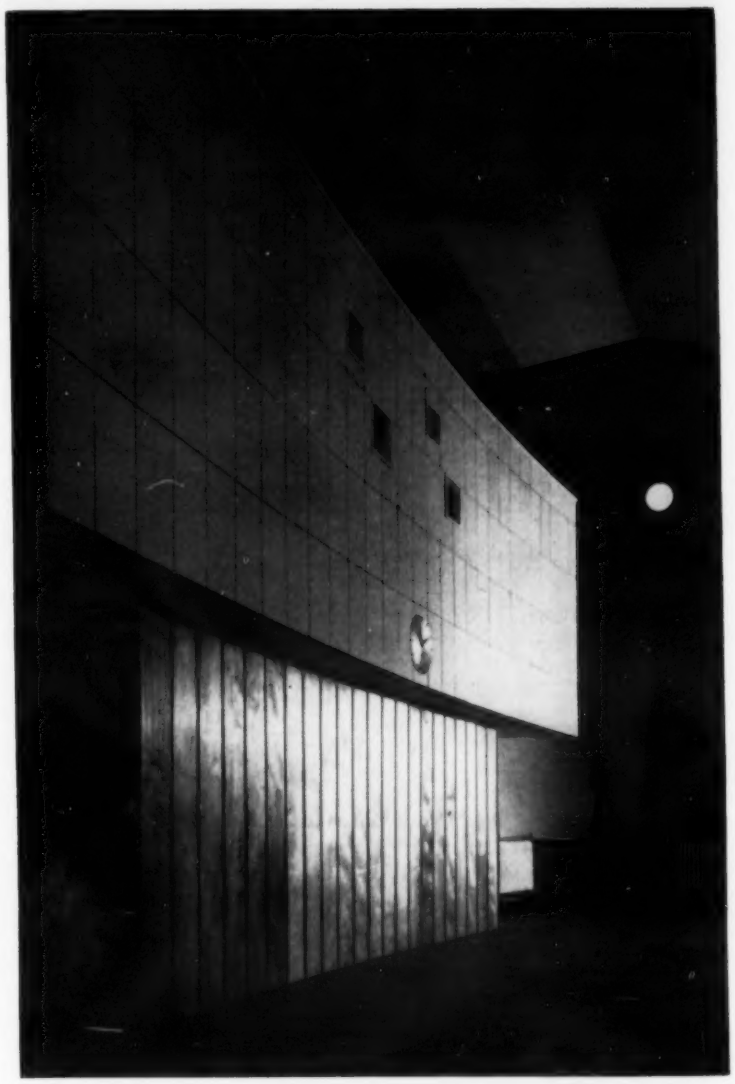
A second part of the Plan called for the establishment in regional centers of Village Colleges. Ten of these were to be organized, each in conjunction with a primary and secondary school. The regional centers were to be selected so that people in every village of the country could have access to a college. Each college was to combine the functions of a school with those of a community center for its region. There would be facilities for all sorts of adult education and clinics to give prenatal care and medical attention. There were also to be auditoriums for lectures, plays, and concerts; meeting rooms for clubs and citizens' groups; sports fields and a gymnasium, a library, and rooms for domestic science and manual training. The Village College, in other words, was to have every facility necessary to an active community life for country people of all ages.

Morris was intensely interested in the arts. Science, religion, and art he considered the three essentials of education and culture. It was natural, therefore, that he should have realized the importance of housing the colleges in suitable buildings. He appreciated the fact that the problem was a relatively new one and that the architectural solution should be bold and imaginative, unhampered by subservience to obsolete conventions. The college building must be a monument to the continuity of education and the setting should enhance the quality of the activities it enclosed. The design and construction must be contemporary, a product of twentieth-century thinking, just as the Village College Plan was contemporary. The building must "take existing and live elements and bring them into a new and unique relation."

In 1930, by the use of public funds and private donations, the first college was



6. Promenade connecting the classroom and the social section.



7. The projection room at the end of the assembly hall.

opened at Sawston; the first physical requirement for carrying out Morris' plan had been achieved. Architecturally, however, the college failed to embody the qualities which Morris had demanded. It was a conventional building, more appropriate in spirit to the eighteenth century than to the twentieth. Two other projects followed during the thirties. In both of these, the architects attempted, with only moderate success, to achieve a more appropriate design. Finally, in 1939, the fourth college was completed at Impington; and here the architects conceived a building which was efficient in function and contemporary in spirit — worthy of being the center around which an active rural culture might revive.

Maxwell Fry and Walter Gropius were the architects of Impington. Two characteristics of the building — the absence of hackneyed stylistic details and the openness and freedom of the plan — are departures from conventional school design. Occasional recent school buildings on both sides of the Atlantic show the same characteristics; but they are rare, and few of them are as successful as Impington.

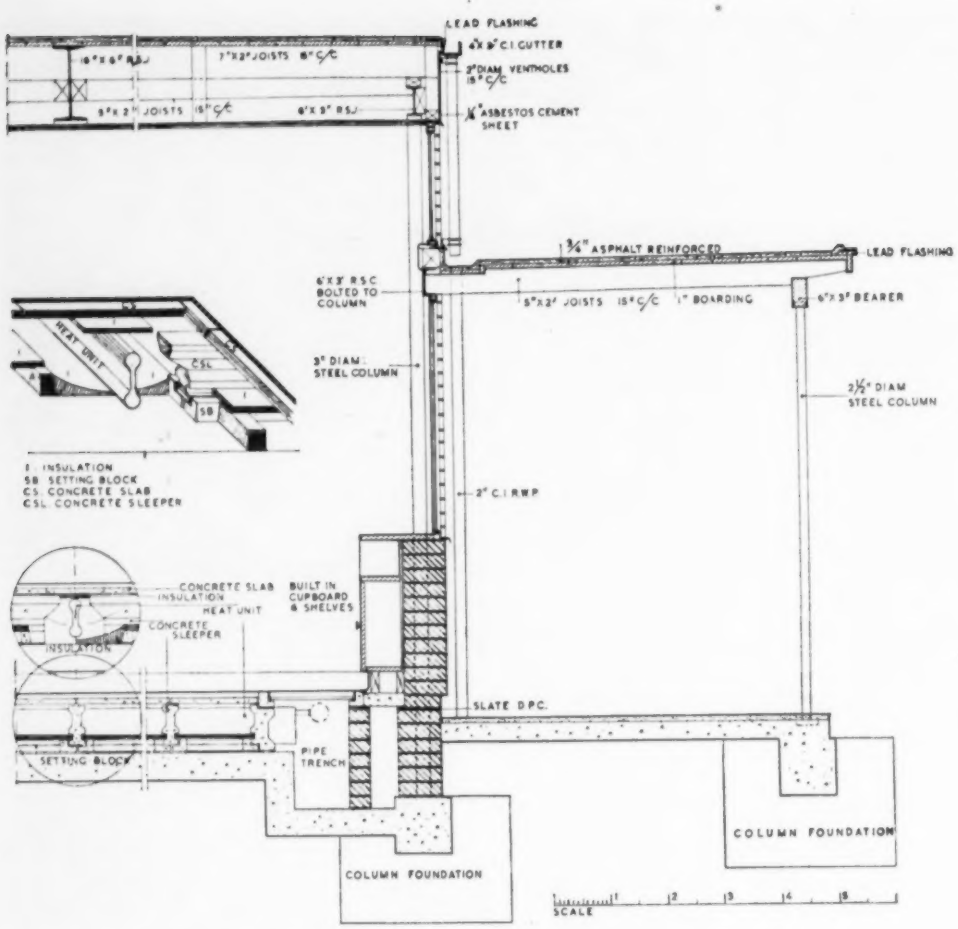
Both psychologically and physically, students benefit by the sound judgment and imagination of Impington's architects and sponsors. Gropius and Fry realized that in a building where educational and recreational activities were to be carried on as parts of normal daily life, the appearance and spirit of the place were almost as important as an efficient plan. Accordingly they provided abundant natural light — a commodity even more precious in cloudy England than in this country — and fresh, bright colors throughout the building. The open plan everywhere affords pleasant views of lawn and trees. The practicality, simplicity, and originality of design that characterize the building as a whole are applied to details like lighting fixtures. Good light and smooth surfaces make cleaning easy. Impington is "functional" in the broadest sense — not only in the strictly material meaning of the word.

The core of Impington's plan is an enclosed promenade. All other sections of the building have access to this space. In addition to serving as a passage, the promenade is used for midday lunches, for exhibitions, and for gathering during the intermissions of plays and concerts.

Branching from this central promenade are the other sections of the building, (1) the auditorium; (2) large rooms for domestic science, fine arts, and carpentry or metalwork; (3) a wing containing a library, lecture hall, and rooms for meeting and recreation; (4) a second wing containing a science laboratory and classrooms for the use of the secondary school students; and (5) administrative offices, cloak rooms, and wash rooms. As far as I know the gymnasium, to be connected with the promenade by an open corridor, has not yet been built because of lack of funds. The village elementary school is housed elsewhere.

A combination of public financing and private donations made possible the construction of Impington. The Cambridgeshire County Council and the government contributed £10,000 each; a group of subscribers made up a donation of £1,200, gifts were made by the Carnegie Trust and the Sir Halley Stuart Trust; and the Chivers family donated the land and the sum of £8,000.

Control of the colleges is largely in the hands of the people who use them. Each



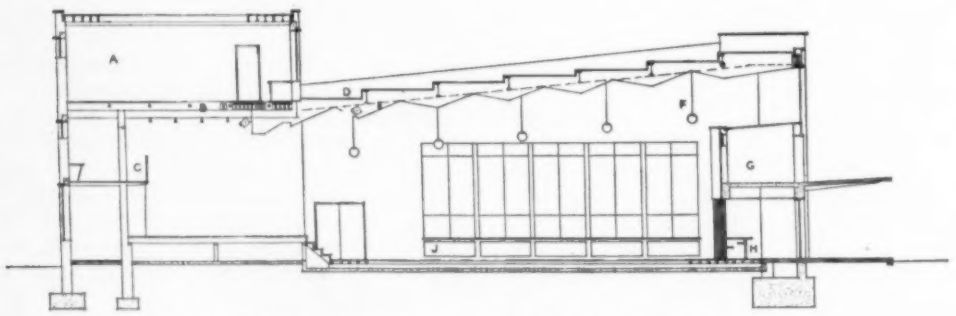
Section through classroom showing typical construction.

village in the region and each parish council is represented on the Board of Managers, which also includes the chairman of the Student Council. This Board shares executive control with the Cambridgeshire Education Committee. The Student Council and the Students' Association also help direct the activities of each college.

The only paid workers for the evening enterprises are the warden, an adult organizer, and a caretaker. Volunteers run the clubs and give their services in managing the canteen as a commercial venture. Through the Student Council they advise on the policy and plans of the colleges, the organization of social groups, and the selection of educational programs. The Student Council also controls the administration of certain funds. It pays rent for the canteen, and many of the clubs pay for the use of meeting rooms.

The British Council, attempting to estimate the success of the Village College Plan, concludes that it has done well in spite of rural conservatism and wartime difficulties. Out of a population of 7500, between 1200 and 1400 people used Impington regularly in 1942. They ranged in age from 14 to over 70. About 300 of these were soldiers and 300 were students enrolled in the formal education classes. Sixteen adult societies and clubs and 8 others for young people from 14 to 20 years of age made use of the building. University extension classes were held; experts delivered talks on new agricultural methods; a series of lectures on the history and peoples of allied and other nations was arranged with the Ministry of Information; and there were concerts, movies, plays, and exhibitions of pictures loaned by the National Gallery.

It seems clear that the Village Colleges are meeting a much felt need. Certainly they are providing educational and recreational opportunities which have never before been available to the people of rural England. Perhaps even more important, they are proving a lesson in working democracy and citizenship — a lesson which is needed in this country as well as abroad.



SECTION THROUGH ASSEMBLY HALL

PANIC IN PLACES OF ASSEMBLY

Fred Wells[1]

Panic cannot be eliminated. The conditions which produce it may be reduced to a point where the probability is almost nil, but it will be an ever-present danger where crowds congregate.

Panic has occurred under many conditions and circumstances. Fear robs man of his powers to reason. History is full of catastrophes which have caused death and injury to persons when fear gripped a crowd. It is this transmission of fear which must be prevented.

Generally something unusual occurs, there is a blanking out of thought in someone's mind, a cry of fear and a rush for safety — then panic.

Fire as a possible cause of panic in our modern civilization always must be considered, particularly in connection with places where a large number of people congregate. The cry of fire alone may not cause a stampede, especially if levelheaded persons can assume control; but if, in addition, there is the glare of flames and the rush of smoke and heated gases, the stage is set for a panic of the worst kind.

The fire and panic hazard exists not only in such places of assembly as schools, theaters, night clubs, and cabarets, but also in stores, churches, hotels, apartments, and other places where people are in numbers.

As a safety measure the matter of exits is the one first to come to mind. It cannot be denied that adequate exits, well placed, suitably marked and, preferably used for both entrance and exit, go far toward giving a sense of security which will lessen the panic hazard.

Exits alone are not the answer. Fires also produce toxic gases, so that even if people sit still and do not join in a mad scramble to leave the building, they may die by the score from the carbon monoxide produced; or they may be enveloped in flame and heated gases before they have a chance to move.

Both of these conditions are extremely likely where a fire occurs on a lower floor and there is an open stairway for the upward travel of partially burned gases which will soon fill the upper floors with a mass of flame and a heavy concentration of toxic gases.

Considering all features, the outstanding one is the amount of combustible material present and the quickness with which it will burn, and the means of preventing or controlling of a fire.

(Concluded on page 78)

[1]Chief of Fire Department, Fargo, N. Dak.

Public School Pools

*Tom C. Prince**

During the early summer of 1947 the administrative and supervisory staffs of the Knoxville, Tenn., school system in which the author is employed were instructed to make a comprehensive study of needed equipment and facilities, both of the buildings in use, and for those to be constructed as the result of a successful bond issue referendum. Among the contemplated new structures were four senior and at least two junior high schools, and in planning these the members of the board of education were naturally desirous of incorporating the most progressive and serviceable features possible within the framework of funds provided.

The combined staffs began work immediately and had little difficulty in agreeing on the inclusion of such necessaries as streamlined shops, clinic and consultation rooms, libraries, gymnasiums, activity rooms, and other indicated training and opportunity space centers. Then they came to the question of indoor swimming pools and found a division in their thinking. The central co-ordinating committee split into three segments of approximately equal size on the issue. The first group felt that if the new buildings were to be at all modern in their opportunity offerings the pools would have to be included. Every physically able youngster should be taught to swim and given a chance to learn water safety firsthand, they held, And what better place to acquire this training than in the public schools?

The second group contended that the expenditure of funds for such a purpose would be impracticable and unjustifiable. The third conceded the desirability of indoor pools, but thought they would constitute a duplication of available facilities. The city already had two year-round pools for a population of roughly 130,000 which was only a little off the 1 to 50,000 ratio usually advocated by recreation authorities. This group also pointed out that there were not less than six public and semipublic outdoor pools open and available to the teen agers from early in May to the middle of September. In addition to the distinct cleavages noted, a majority of the committeemen wondered whether the pools would not become disease-transmitting mediums and consequently do much more harm than good. In the end the committee members decided to solicit the opinions and counsel of their own city health officers and those of the state and city health officials in neighboring communities. This was done.

In a personal letter to each selected official the problems confronting the staff were explained and the recipient was asked to check the descriptive word or phrase which represented his opinion for the elementary and junior and senior high school levels. The questionnaire enclosed was a mimeographed sheet and read:

In my opinion and under the conditions stated in the brief explanation given me and from the standpoint of the physical welfare of the boys and girls involved and the possibility of infection and transmission of contagious diseases, the construction of indoor swimming pools in connection with (your) new . . . (senior, junior, high, and elementary) schools would be: (*a*) desirable, (*b*) feasible, (*c*) an avoidable duplication, (*d*) questionable, (*e*) undesirable.

Replies of Public Health Officers

Forty-eight questionnaires and letters were sent to the public health officers and 35 checked sheets were received promptly. The results are summarized in the following table:

	Senior H.S.	*Junior H.S.*	*Elementary School*
a) Desirable ...	19	17	6
b) Feasible	6	7	7
c) Avoidable duplication ..	1	1	2
d) Questionable.	4	5	12
e) Undesirable..	1	1	3

Of considerably more value to the staff members than the checked questionnaires were the comments which accompanied them, however. Most of the 35 public health officers added marginal or footnote remarks and 16 took the time and trouble to write letters varying in length from several paragraphs to three typewritten pages. Some representative excerpts are here quoted:

1. . . . Provided proper operation and maintenance is obtained. . . .

2. . . . Swimming pools in connection with high schools and junior high schools are desirable from the point of view of recreation and exercise . . . the possibility of infection and transmission of contagious diseases . . . is a matter depending upon the construction and operation of the . . . pools.

3. I have indicated on the form that I believe swimming pools in connection with the schools are highly desirable. I believe this should be qualified with the statement that provided they are properly supervised and maintained. . . . I know of nothing of this nature that contributes quite as much to the physical welfare of boys and girls as does swimming in properly maintained swimming pools or bathing places. . . . From the disease standpoint the water of a swimming pool meeting drinking water standards and containing the proper amount of chlorine residual can in no way be involved in the transmission of diseases. . . .

4. . . . I hardly feel that such facilities are highly desirable for elementary schools because of the possible large group of nonswimmers and the much greater supervision that would have to be provided for swimming pools in such schools. . . .

5. . . . Pools (should be) recognized as community recreation facilities as well as facilities for regular school use and . . . provision be made for them to be opened regularly for use by non-school groups. . . .

6. . . . If these swimming pools could be so staffed as to be certain students did not use them when they had any communicable disease, then I would say they were desirable, but I realize it will be difficult to do so. . . .

7. . . . Certainly all junior and senior high schools should have swimming pools within the building. Most of the municipal pools are too far away from schools to be used for class instruction and it should be one of the aims of the school that every boy and girl be able to swim before they graduate from high school. . . .

8. . . . Just glancing at your questionnaire I became immediately suspicious of the fact that the originator thereof did not favor any such project. . . . Feasibility . . . hardly enters into the matter . . . any *properly constructed* and *properly operated* swimming pool creates no hazards of infection or transmission of disease any greater than are found in a classroom or properly operated gymnasium. . . . The swimming pool might be a step toward making the school a better contributing unit within the community.

9. . . . Not having any swimming pools in our schools we are not in a position to answer your questionnaire intelligently.

So many helpful suggestions were received from the health officers and so strong were their endorsements of the use of indoor swimming pools that the staff decided to send similar questionnaires and letters to the superintendents of other school systems in cities of comparable size and geographic location. It seemed evident that questions pertaining to the elementary-level buildings could be dropped and so these were omitted, and the questionnaire was reworded. Twenty-seven superintendents were asked to check the inclusion of swimming pools in the junior and senior high schools as (*a*) necessary, (*b*) advisable, (*c*) desirable (if the money was available), (*d*) unnecessary, and (*e*) a duplication.

Opinions of the Superintendents

Twenty-five city superintendents returned the checked questionnaires. Two of them marked swimming pools as necessary, 1 advisable, 17 desirable if sufficient funds were available, 4 unnecessary, and 1 as an avoidable duplication. The replying school system heads wrote no letters but they did add comments to the sheets which told us more than the check lists. A few of them are quoted below:

1. If one could have every feature desirable I'd have swimming pools.

2. While we feel pools might be omitted in so far as the educational program is concerned, the public demands them, once they are put into a building.

3. Operation and upkeep cost out of proportion with value.

4. We can't afford them.

5. We are just too poor to think about it.

6. Many other physical needs should have priority.

7. We do not use ours during the winter or the regular school year. The recreation department uses it during the summer months. . . . I would not recommend it for our city when we have other needs much more important.

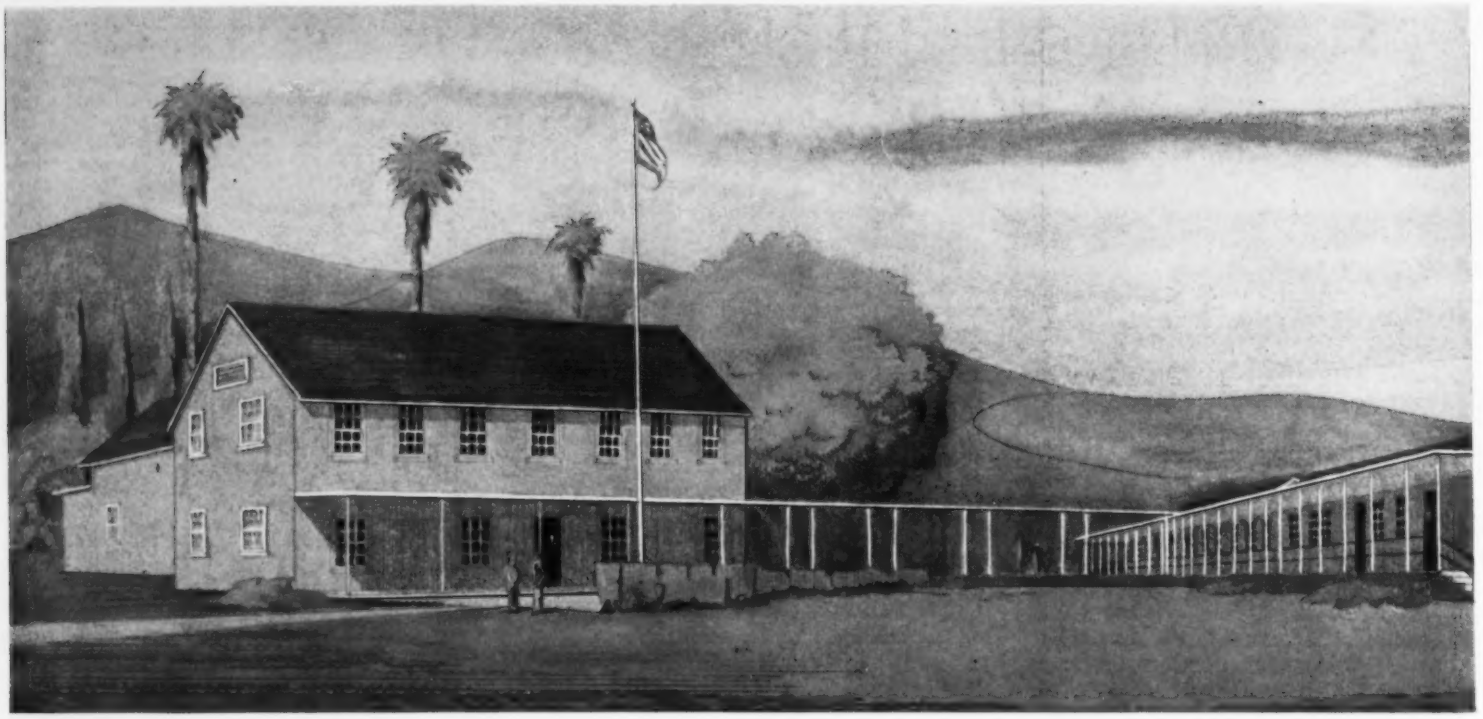
8. The swimming pool in our senior high school has proved very valuable. We wish we had more in our junior high schools. . . .

9. . . . I believe that every high school should have a small individual tank. . . .

10. I have felt that these are luxuries which we cannot afford until other facilities are brought up to a higher standard.

(Concluded on page 79)

*Superintendent, Knoxville City Schools, Knoxville, Tenn.



Perspective, Arlington Avenue Elementary School (using surplus army buildings),

Riverside Converts Army Buildings Into School Housing

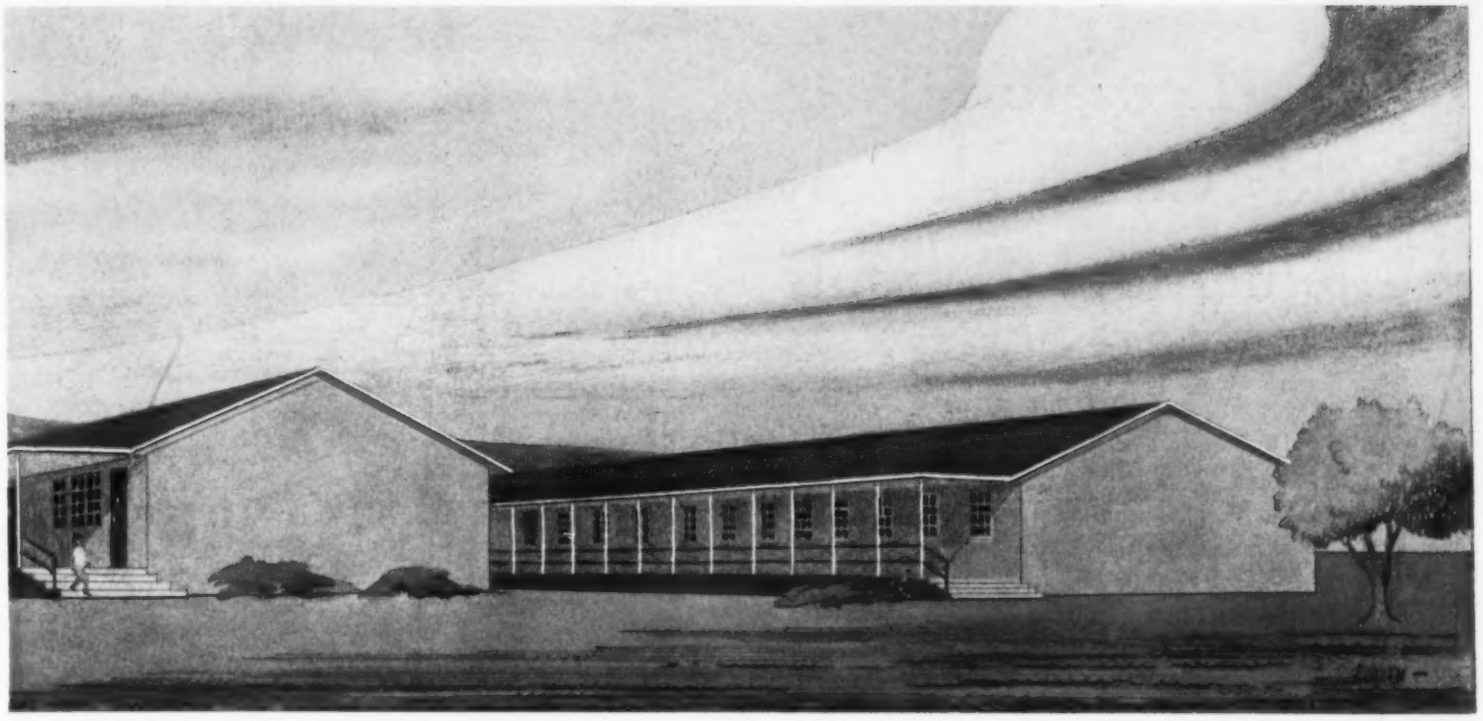
Harry K. Young[1]

Like most every other California community, Riverside during the war years experienced one of the most rapid periods of its steady growth. The school population in the year 1946–47 alone, increased 10 per cent over the previous year, adding some one thousand students to the already swollen rolls. The increase for the school year 1947–48 shows some indication of slowing down — but not much. Faced with this situation, it was evident that our schoolhousing problem would soon become acute despite a million and a half dollar basic building plan. Something had to be done.

Luckily or unluckily, Riverside is situated in an area of large and now surplus army camps. The board of education, reviewing with increasing alarm the rising enrollment, the rising cost of construction, and the steadily shrinking value of the million and a half reserve bond building money, moved with some apprehension toward acquiring buildings

[1]Business Assistant, Riverside City Schools, Riverside, Calif.

The Riverside, California, Board of Education in Session. Left to right: George C. Pooley, vice-president; Mrs. E. M. Bonnett, president; John Gabbert; Mrs. Gladys T. Babcock, clerk; Lewis P. Alabaster; Ira C. Landis, superintendent.



Riverside, California. — Heitschmidt and Matcham, Architects, Los Angeles.

from the abandoned camps. Approval was asked and received from the state schoolhousing authorities to utilize certain surplus army buildings for classroom purposes.

In Camp Anza, just two miles outside of the city limits of the city of Riverside a surplus hospital unit was found. In the hospital unit there were twenty ward room units, a small theater, numerous clinics, nurses' quarters, administration units, six boilers and steam lines, and a number of covered runways. To acquire this property the board of education applied to the War Assets Administration, to Hon. John Phillips, Congressman representing the Riverside area, and to the two senators representing California.

Eventually eight of the ward rooms, the theater, and three of the boilers and appurtenant steam lines and fittings were sold to the school district at a 95 per cent discount

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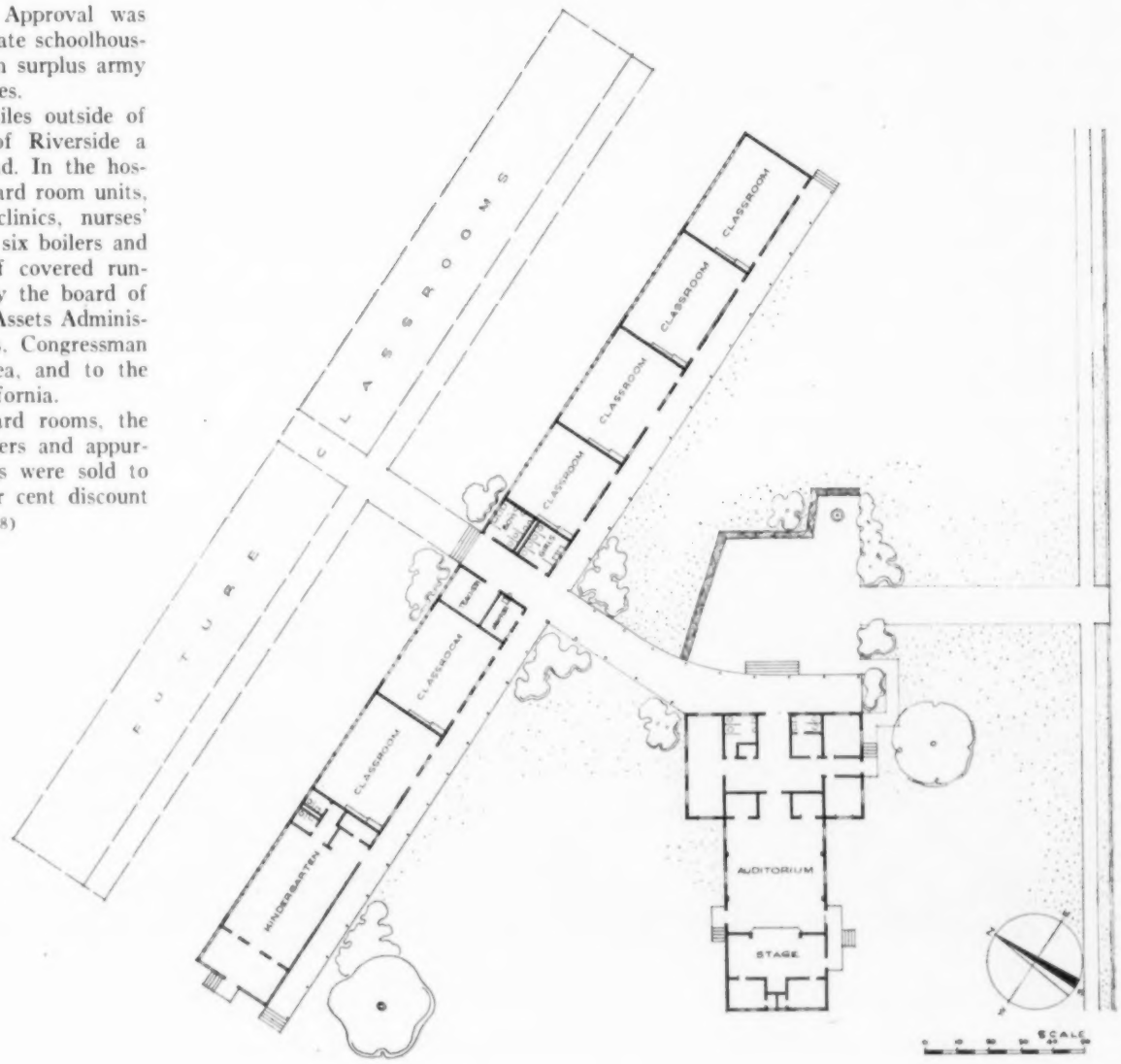


Plot and Floor Plan, Arlington Avenue Elementary School, Riverside, California. — Heitschmidt and Matcham, Architects, Los Angeles, California.

Lewiston Builds Comprehensive Elementary Schools

Perspective, Whitman School,

In 1945, the Lewiston School District, Idaho, voted bonds to build new school buildings. The public was informed that the city was to have three new school buildings and a vocational shop building. These schools were to provide adequate classrooms to care for crowded school conditions. The amount of this bond election was based on estimates of construction costs made in 1944. It was discovered when plans were being developed in the spring of this year that the money, because of the increased prices, would build but one school building of the construction that was originally planned. Superintendent L. L. Carlson and the architects realized that they must discard all previous plans and attack the problem from the standpoint of providing classrooms with all the features necessary for carrying out the school program and classrooms of adequate size. It was also realized that the construction would employ only materials that were readily available locally, that all wasteful architectural features must be abandoned. Through the co-operation of the school board and the superintendent, a plan was developed which was even better than the original plans. After bids were received the construction costs were found to be within the funds available.

Bids were asked on a combined bid for the three schools and separate bids for each school building. Separate bids were called for on general construction, plumbing and heating, and electric wiring and lighting. The combined bids of the lowest contractors for the respective parts of the work resulted in a saving of approximately $12,000 under the separate bids for the individual schools.

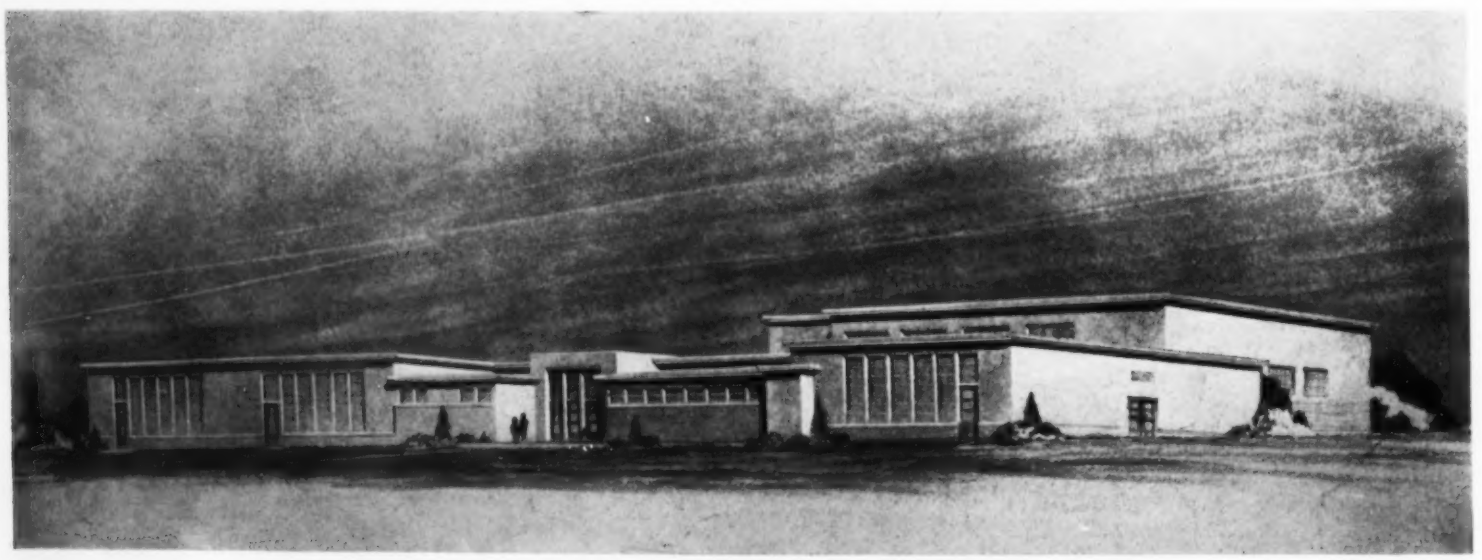
The contracts were awarded to:

Brennan & Cahoon, Inc., Pocatello, Idaho, for the General Construction Contract amounting to	$469,783
Lewiston Plumbing, Heating & Sheet Metal Co., Lewiston, Idaho, for Plumbing and Heating Contract amounting to	118,171
C-L Electric Co., Pocatello, Idaho, for the Electrical Contract amounting to	33,942
The total cost of construction	$621,132

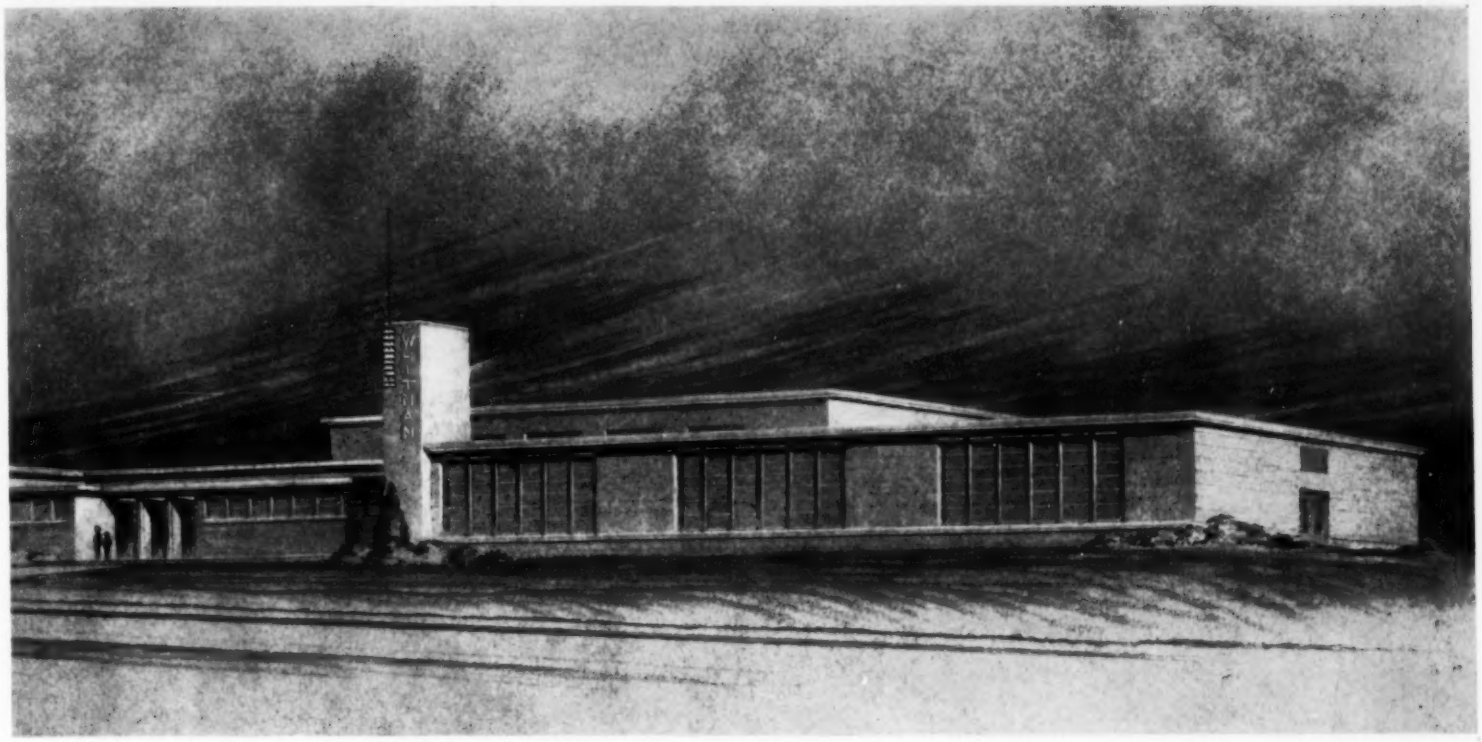
The total cubic contents of the three buildings amounts to 1,380,000 cubic feet, making the cost per cubic foot approximately 45 cents.

Each building contains a combination gymnasium-auditorium, including locker and shower rooms, bleacher seating, stage and dressing rooms, lunchroom, kitchen, health clinic, offices, kindergarten, general toilet rooms. In addition, the Webster School and Whitman School have 12 classrooms each, and the Orchard School has six classrooms. Estimating the cost of the combination gymnasium and auditorium facilities, the lunchroom and kitchen, it was found that cost per classroom amounted to less than $10,000 per room.

One of the special features of the plan is the combination gymnasium and auditorium which is also planned to serve as a community center for use of Parent-Teacher Association meetings, etc. This gymnasium-auditorium has the stage constructed over the boiler room



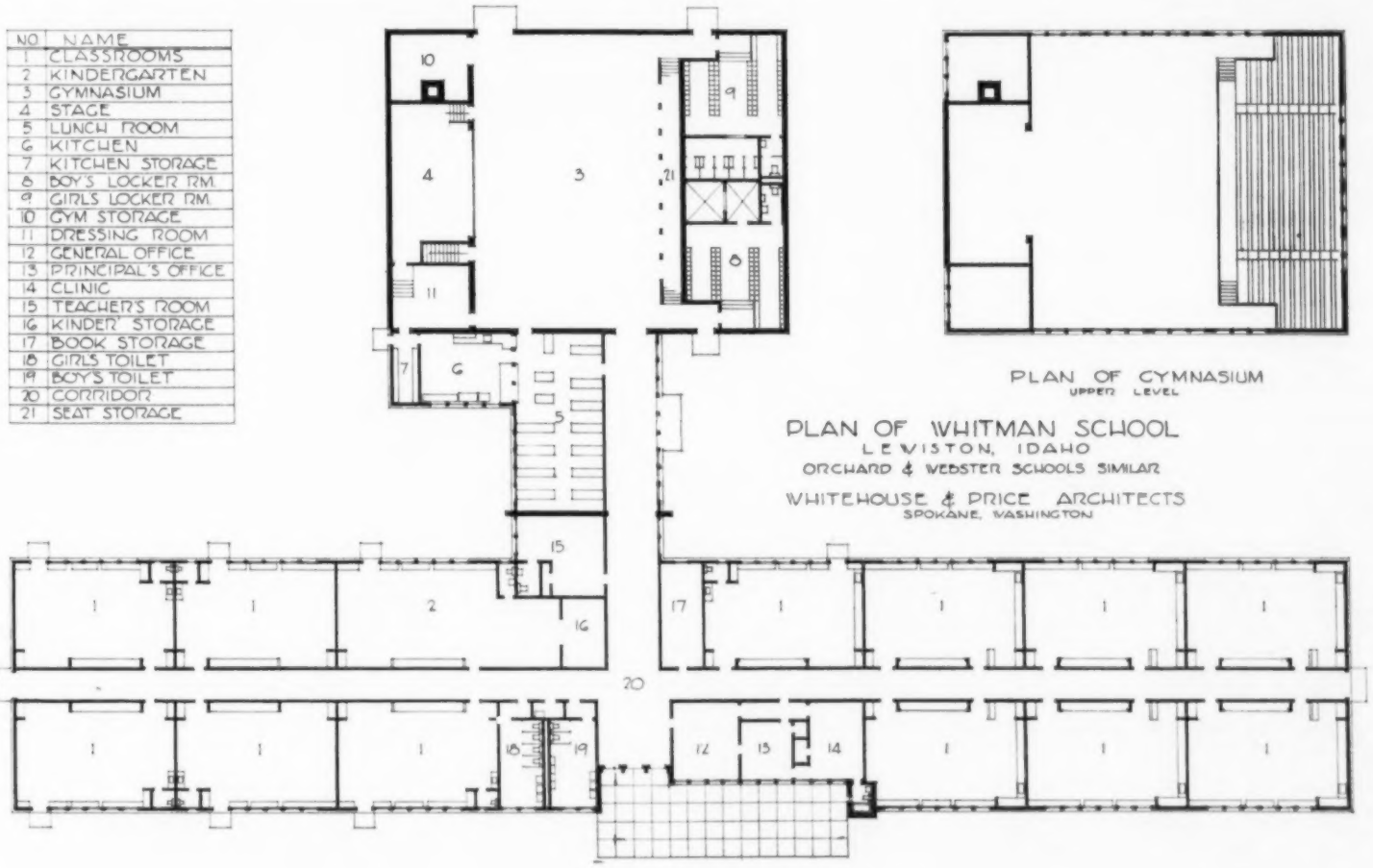
Perspective, Orchard School, Lewiston, Idaho. — Whitehouse & Price, Architects, Spokane, Washington.



Lewiston, Idaho. — Whitehouse & Price, Architects, Spokane, Washington.

which is of reinforced concrete, has the shower and locker rooms constructed under the bleachers, thus using every available space. By constructing the stage over the boiler room the amount of excavation was minimized. A lunchroom and kitchen adjoins the gymnasium-auditorium which will serve as the school cafeteria and also be used for serving community dinners.

The buildings are being constructed with exterior walls and fire walls of brick, using a light colored face brick. The foundations are of concrete. The boiler and fuel room construction is of reinforced concrete. The balance of the construction is wood frame. The



Board of Education, Lewiston, Idaho.
Left to right: Floyd S. Brown, clerk; C. M. Solberg, president; Dr. R. C. Peterson; L. L. Carlson, superintendent; Glenn Gage; J. J. Church; George Williamson.

roofs are flat with tar and gravel built-up roofing.

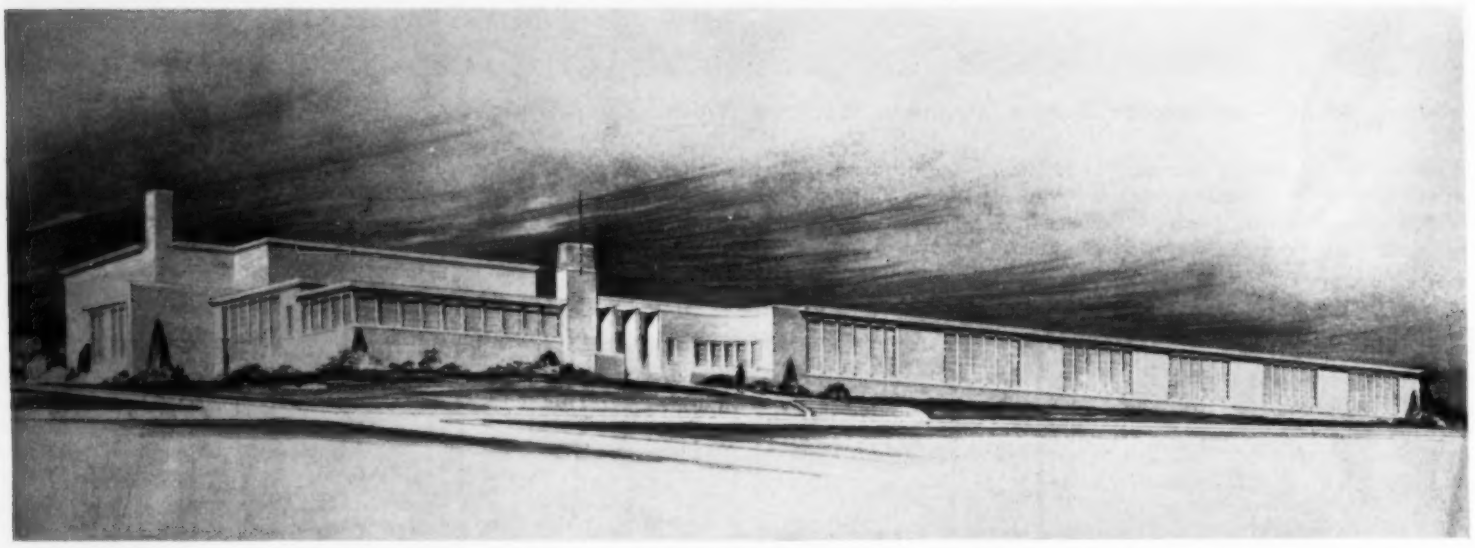
The interior walls of the building are plaster. The ceiling treatment in classrooms, corridors, lunchroom, and gymnasium is acoustical tile.

The shower and locker rooms are finished with glazed structural tile units. The general toilet rooms have ceramic tile wainscots. Toilet partitions are of metal. The floor covering throughout is asphalt tile.

The woodwork is of native Ponderosa pine and will be given a natural finish. It is also planned to have natural finished furniture. The rooms are all being treated with pastel colors, varying the colors for the different rooms.

The heating systems are stoker-fired steam plants. The unit ventilators will be used in the air conditioning of classrooms.

The primary rooms all have individual toilet rooms. The classrooms all have many built-in features.



Perspective, Webster School, Lewiston, Idaho. — Whitehouse & Price, Architects, Spokane, Washington.

School Building News

► San Francisco, Calif. Dr. N. L. Engelhardt, New York School Planning Expert, has been appointed by the board of education to conduct a preliminary survey of the school plant. The survey findings will be used in planning a $30,000,000 school-bond issue to be presented to the voters next spring. The survey, to be completed by April 15, will (1) analyze the present school plant, (2) present population growth and trend studies, (3) recommend new school sites, and (4) relate the school curriculum to the school planning. Dr. Engelhardt, in a statement to the school board, said that the school plant should be in continuous use all of the waking day, up to 16 hours. The auditoriums, gymnasiums, conference rooms, and large classrooms should be adaptable to out-of-school-hour use.

► Hinsdale, Ill. The voters have approved a school-bond issue of $2,200,000 for the construction of a high school building. Plans are being made for the sale of the bonds early in April, 1948. The board is planning to convert the present senior high school into a junior high school.

► Abbeville, La. The Vermilion parish school board has called an election to vote $1,600,000 in bonds for new school projects. The new school facilities are badly needed to meet an increase in enrollment.

► Houston, Tex. The school board has voted to begin a survey of the school plant to determine its actual housing needs and the approximate cost of each project. The board has sold $5,004,000 in bonds from its $25,000,000 issue voted last June.

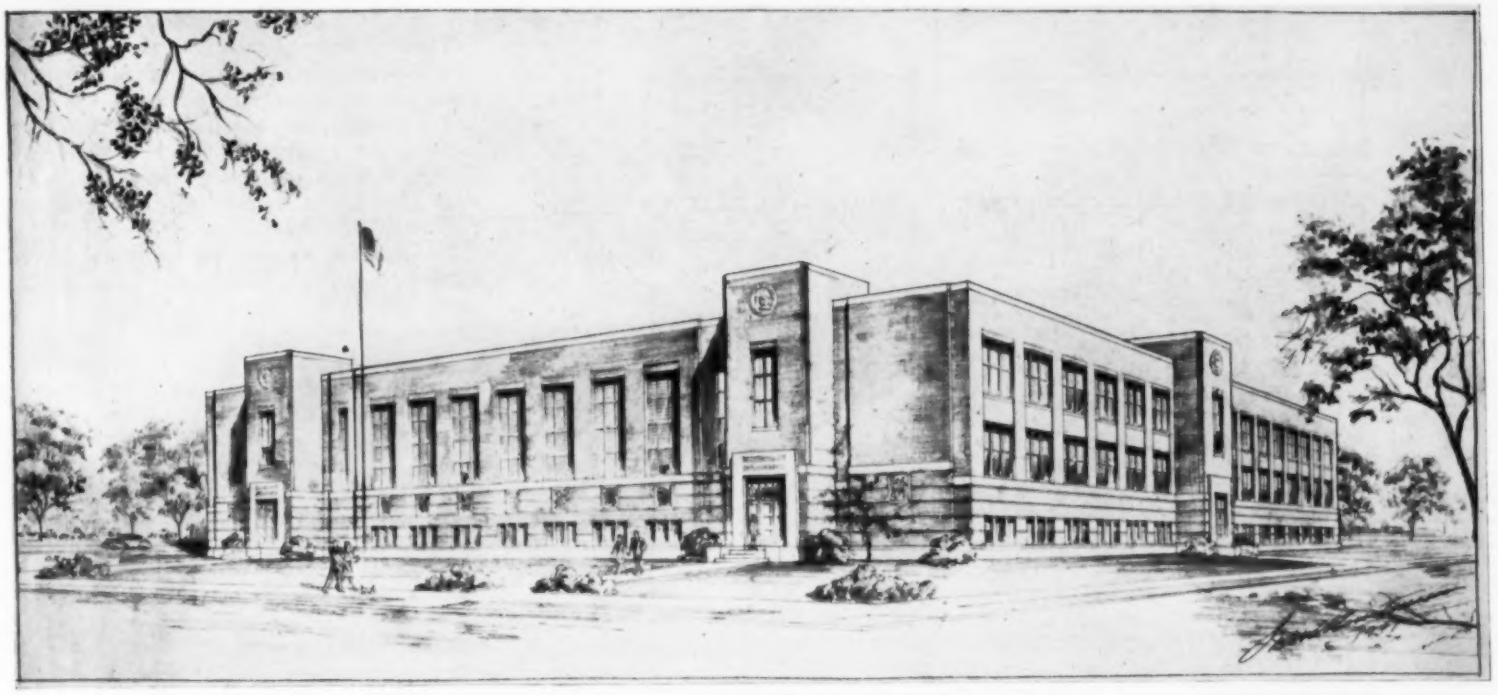
► Beloit, Wis. A school-bond issue in the amount of $150,000 has been approved by the board for additions to three schools. The bond issue in place of the pay-as-you-go plan was adopted because of the low interest rates prevailing and the need for keeping the taxes down. The board has received a gift of $3,000 to be applied toward the proposed Memorial High School.

► Stratford, Conn. A survey of the school plant has recently been completed by Supt. Charles E. Chaffee and his staff, at the request of the board of education and the town council. The survey was intended to inform the citizens as to the present situation in the schools with a view of determining the future schoolhousing needs of the town. The building program, as outlined, will cover a period of years and will provide a long-term building program to insure adequate school facilities in future years. At the present time, the board has plans and specifications ready for bids for the construction of a large gymnasium. The building will include a musical section and an administrative unit. The cost is estimated at $725,000.

► Manhattan, Kans. The school board has employed Dr. J. W. Twente and Dr. Carl B. Althaus, of Kansas University, to conduct a survey of the school plant. The survey is a preliminary step in the direction of a school-building program which the board is planning. The board has purchased additional land to be used in enlarging the junior and senior high school.

► Portland, Ind. Construction work has been started on the new Garfield elementary school, which is to be completed ready for occupancy in September, 1948. In addition to six classrooms, the building will contain a clinic, a teachers' room, and an office. Messrs. McGuire & Shook, Indianapolis, are the architects.

► Wabash, Ind. The school board has created a sinking fund to be used for financing new building projects. It is estimated that the fund will amount to $300,000 in 12 years.



Perspective, Elementary and High School, East 133rd Place and South Corliss Avenue, Chicago, Illinois.
John C. Christensen, Architect, Board of Education, Chicago.

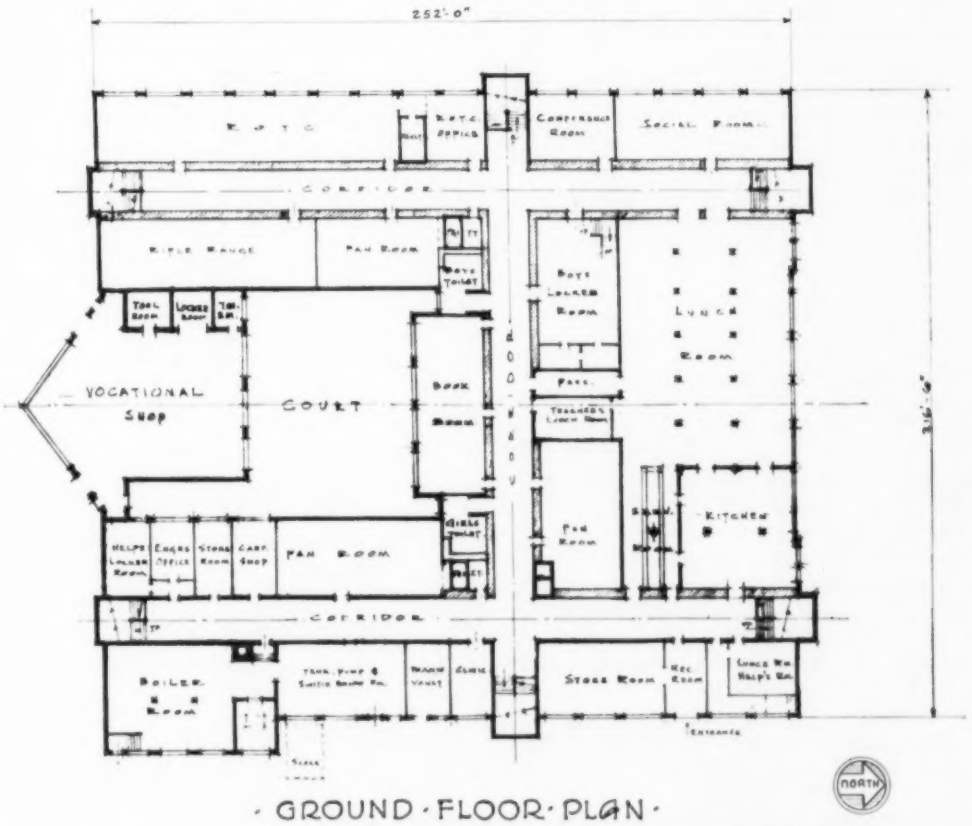
A Building for a 12-Year School

The architectural departments of large city school systems meet problems in schoolhouse planning which are unique. One such problem is the planning of school buildings for neighborhood communities so situated by geographic or industrial and railroad limits that they require special types of school buildings. New York, Chicago, and other large cities are confronted with situations of this kind.

Recently, John C. Christensen, architect for the Chicago board of education, was asked to plan a school building to meet the problems of a sharply limited area, the Altgeld Gardens Housing Project, and to provide a building which would serve for a kindergarten and 12 years of elementary and secondary schooling. The educational department of the school administration had determined that the building should provide space for 1200 children, of which 350 are enrolled in grades 9 to 12.

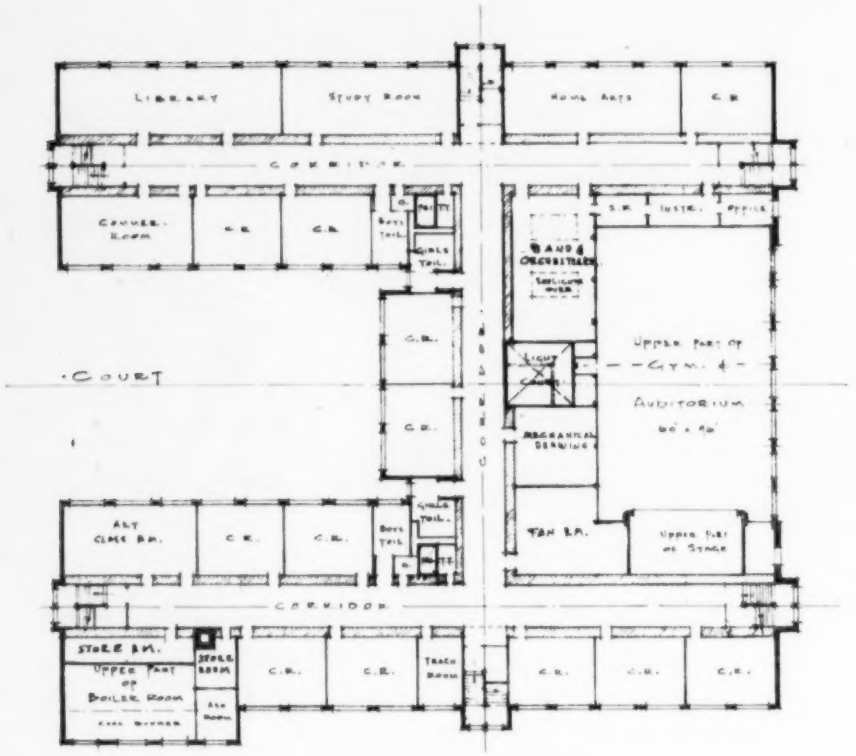
The building occupies a site measuring 635 by 573 feet, with the principal frontage on the longer side. The building is so located that extensions can be made if the enrollment requires, and complete play areas can be developed to the rear of the structure.

The building provides an administrative suite and offices for the several instructional departments. It includes 20 standard classrooms, an art department, a commercial room, 2 laboratories, a library for the high school and a smaller library for the elementary school, a music room, a high school study room, a kindergarten, a suite of 4 shops for



· GROUND · FLOOR · PLAN ·

Elementary and High School, East 133rd Place and South Corliss Avenue, Chicago, Illinois. — John C. Christensen, Architect, Board of Education, Chicago.



· SECOND · FLOOR · PLAN ·

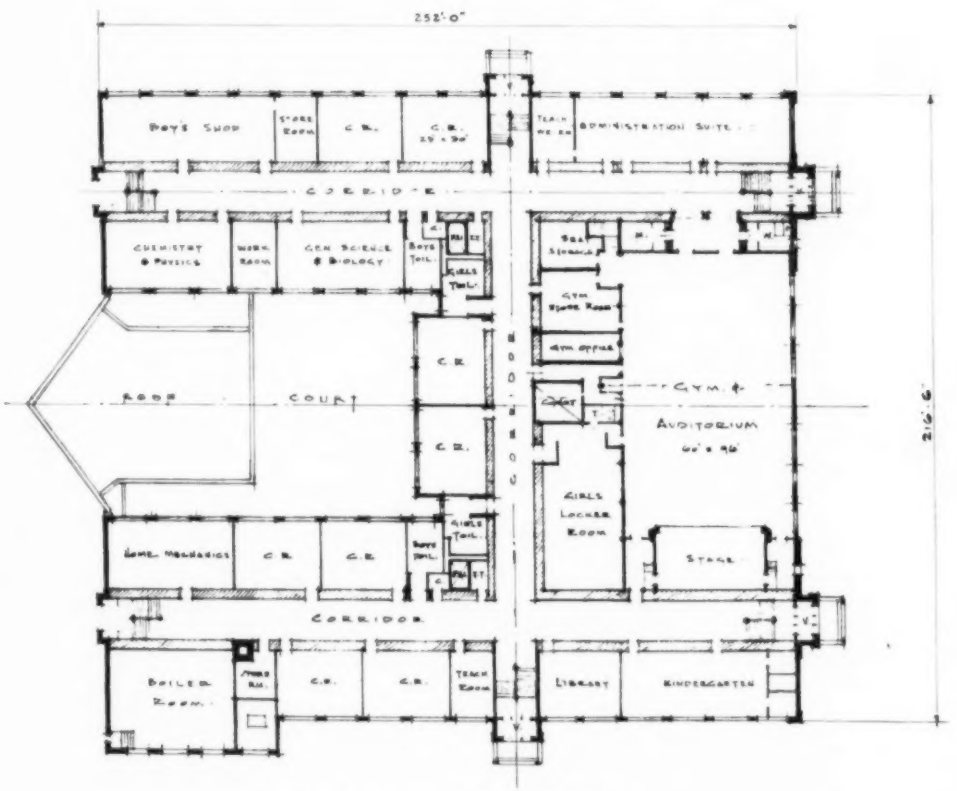
Elementary and High School, East 133rd Place and South Corliss Avenue, Chicago, Illinois.

industrial arts, a mechanical drawing room, a clinic, 2 teachers' rest rooms, a lunchroom with kitchen adjoining, a rifle range, and a drill room for the ROTC.

The auditorium and gymnasium have been combined in one room having a play area of 60 by 96 feet. The room is planned to seat 900 pupils; it includes spaces for the teachers, a stage, and shower and locker rooms.

The exterior design is modernistic with a few touches of modernized classic ornament. The exterior facing is brick, the trim is Bedford cut stone, and the window sash is steel. The entire structure is fireproof, with concrete foundations, steel columns and beams, tile arch floors and roof, and tile partitions. The main walls throughout are brick. The corridors are finished with asphalt-tile floors, tile wainscot, plaster walls, and acoustic-tile ceilings. The stairs are of steel, with terrazzo treads and glazed-tile wainscoting. The classrooms have maple floors and trim, painted-canvas wainscot, plaster walls and ceilings. The auditorium has maple floors, terra cotta walls, and acoustic-tile ceiling. The toilet rooms have ceramic-tile floors, glazed-tile walls, and plaster ceilings. Suitable finishes for hard wear are provided in the shops and laboratories.

The building is heated by means of high-pressure, steel water-tube boilers, with underfeed stokers. The ventilation throughout is mechanical, with separate unit heaters in the automotive shop. Air filters are of the throw-away type. The temperature in all rooms is controlled by pneumatic thermostats.



· FIRST · FLOOR · PLAN ·

Elementary and High School, East 133rd Place and South Corliss Avenue, Chicago, Illinois. — John C. Christensen, Architect, Board of Education, Chicago.

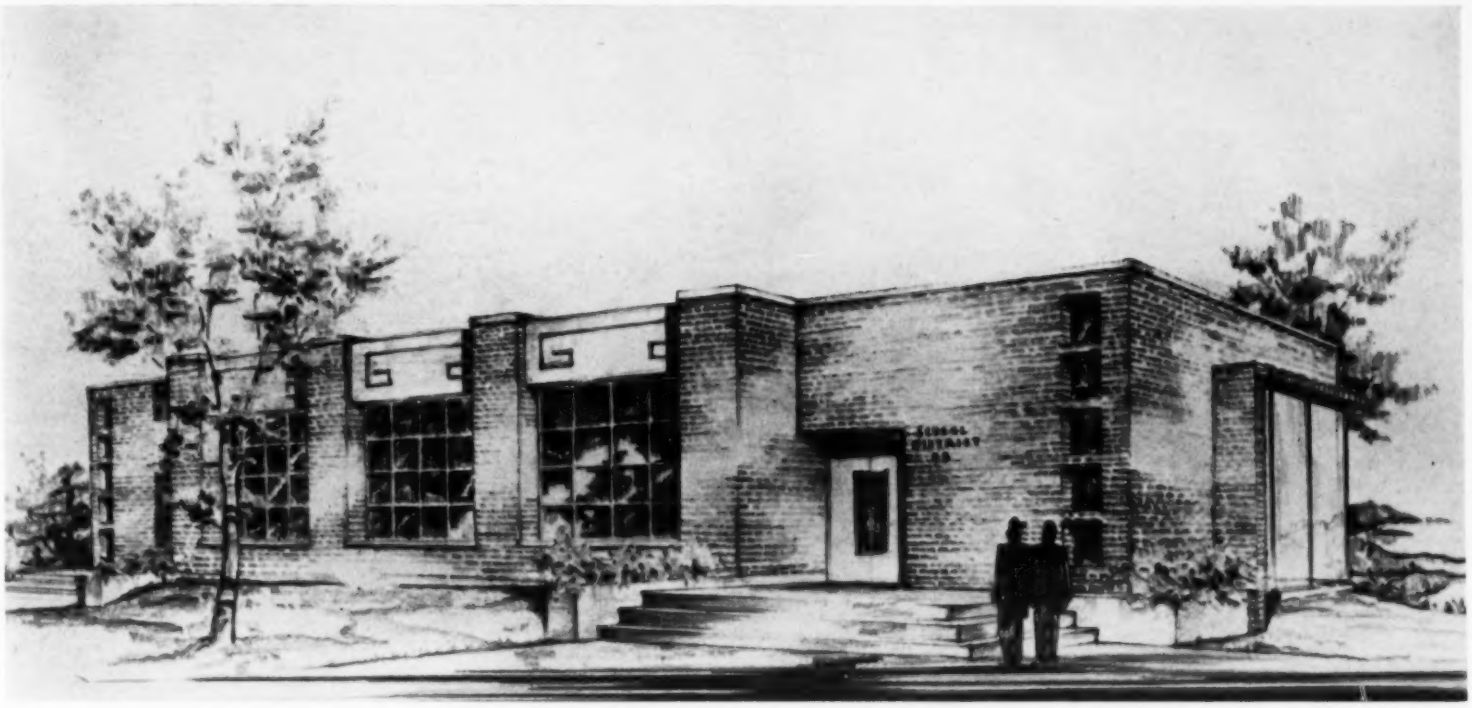
The electrical equipment includes fluorescent and filament lighting, a complete program-clock system, intercommunicating telephones, and fire-alarm call boxes. Conduit has been installed for complete radio and public-address systems. Outlets are provided for power in the shops and laboratories and for visual education in all classrooms.

The sanitary installations are of the heavy duty type, with vitreous washbowls, urinals, drinking fountains, and toilets. The toilet and shower partitions are of marble.

The corridors are lined with steel lockers, and the classrooms, shops, libraries, and laboratories have especially designed wood cabinets and bookcases.

The contract for the building was let November 26, 1947, at a price of $2,110,677. It is expected that the equipment will not exceed $89,323 in cost. The cost per cubic foot will be 95 cents, and on the basis of a normal capacity of 1200 pupils will be $1,833 per student.

The building was designed by John C. Christensen, architect of the board of education, and the architectural planning was done by the Educational Survey Division of the board of education.



Perspective, Southeast Side School, District 83 (Manneheim, Melrose Park P.O.), Cook County, Illinois. — Edward W. Rupinski and Carl Ording, Architects, Chicago. Thomas J. Higgins, Consultant, Chicago.

A Word of Encouragement From the President of a School District

S. F. Carne[1]

Our school district is located in an unincorporated area of Cook County about 15 miles northwest of the Chicago Loop. War plants erected in the community since 1942 increased the school membership to such an extent that it was imperative to provide additional schoolhousing.

Dr. Eugene Lawler of Northwestern University was retained to make a survey of population growth and present and future school requirements. Two buildings were recommended to satisfy immediate needs.

Thomas J. Higgins, a consultant on schoolhousing, was then retained to interpret the educational requirements into school plans that would relieve the present overcrowding and provide for expansion as the enrollment in the schools of the district increased.

Bond issues in the amount of $800,000 were voted for the construction of the original school units.

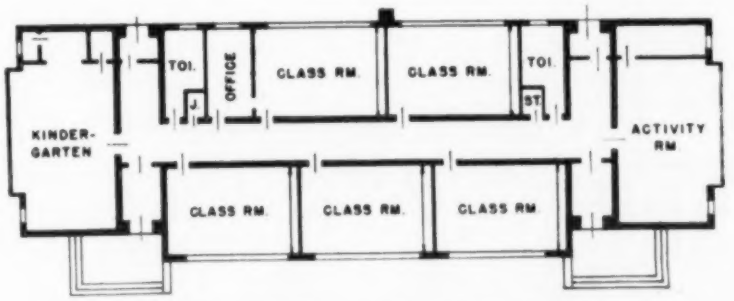
Plans and specifications were prepared incorporating economies in construction and giving consideration for availability of materials. Bids were solicited and secured in January, 1947. Construction began in March.

All bids were firm bids and provided for no escalator clauses. The extras so common in construction today have been nonexistent. The total extras on both buildings amounted to less than $500.

There was not one day's delay during the construction of these buildings due to lack of materials or lack of labor.

The Southwest Side School, which is the larger of the two buildings, was erected at a construction cost of 67 cents per cubic foot. To the best of my knowledge this is the lowest cost school building that has been constructed in the Chicago metropolitan area since before the war.

The buildings we have erected are complete in every respect. They are of fireproof construction throughout including the roofs. Face brick and cut stone form the outside walls. The corridor wainscot and the toilet room walls are glazed tile. All ceilings are acoustical tile. Walls through-



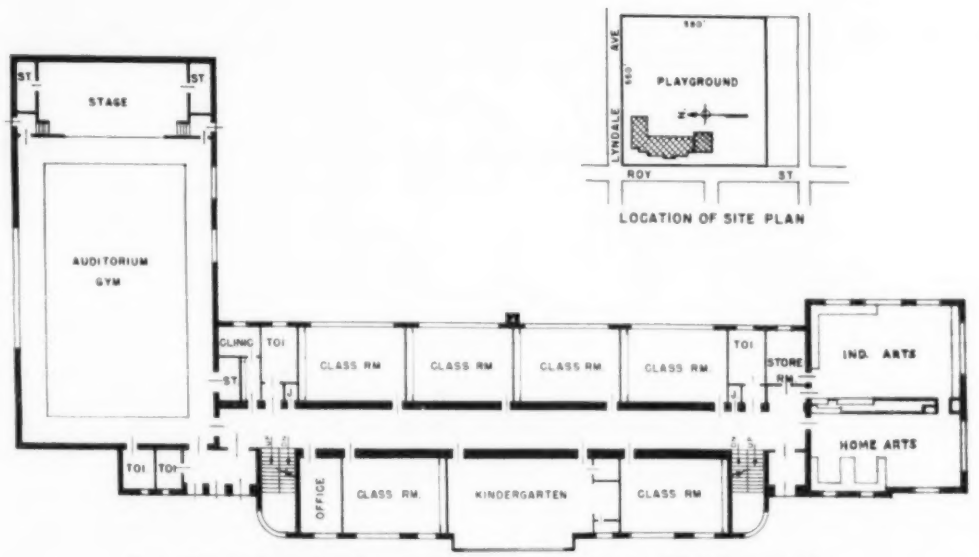
Floor Plan, Southeast Side School, District 83 (Manneheim, Melrose Park P.O.), Cook County, Illinois.

[1]President of the Board of Education, School District No. 83, Cook County, Ill.

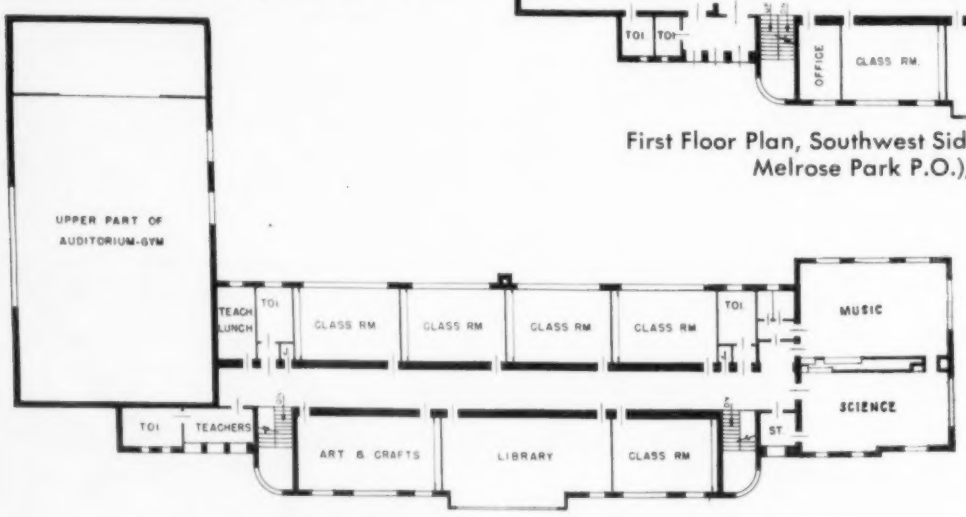
Perspective, Southwest Side School, District 83 (Manneheim, Melrose Park P.O.), Cook County, Illinois. — Edward W. Rupinski and Carl Ording, Architects, Chicago. Thomas J. Higgins, Consultant, Chicago.

out except the gymnasium and shop are plastered. The corridor and classroom floors are asphalt tile. A public-address system and program clock are included in the permanent equipment. The heating and ventilating systems are complete, with thermostatic controls from each room. We are proud of our new school buildings and the manner in which they were erected during the period in the construction industry when pessimism was encountered on every hand.

Edward W. Rupinski and Carl Ording were the architects associated with Mr. Higgins in planning these buildings. Joseph J. Duffy Co. were the general contractors.



First Floor Plan, Southwest Side School, District 83 (Manneheim, Melrose Park P.O.), Cook County, Illinois.



Second Floor Plan, Southwest Side School, District 83 (Manneheim, Melrose Park P.O.), Cook County, Illinois.

SCHOOL BUILDING CONTRACTS

During the month of October, 1947, Dodge reported that 299 educational buildings were put under contract in 37 states east of the Rocky Mountains. The total valuation of the contracts was $44,967,000.

During the month of November, 1947, contracts were let in 11 states west of the Rocky Mountains for 11 school buildings, to cost $2,514,323. Eleven additional projects were reported in initial stages, to cost an approximate $4,212,740.

SCHOOL BOND SALES

During the month of November short-term paper and refunding bonds were sold, in the amount of $3,918,000.

During the same month, permanent bonds were sold, in the amount of $28,960,400. The interest rate of November 30 was 2.09.

The Use of Lightweight Steel Joist Floor Construction for School Buildings

S. H. Burgess[1]

According to reports of the National Fire Protection Association, more than two thousand fires occur annually in school buildings!

We can be thankful that more lives are not lost in these fires. There is good reason for the fact that the loss of life in such fires is small. If fires break out in the daytime, when school buildings are occupied, they are usually readily discovered and can be extinguished before they reach anything like major proportions. Also, fire drills are so well organized that it is only a matter of minutes before the schoolhouse can be evacuated. Unfortunately, the majority of fires in schools seem to occur at night or on holidays, when the buildings are not occupied, and are well on the way to completely destroying the structures before they are discovered.

Although the life loss in school fires is negligible, the loss in school property is enormous. According to N.F.P.A. statistics, in more than half of the school fires where loss is known, damage exceeds $10,000 per fire. Of all the school fire losses studied, 32.4 per cent ran higher than $50,000. It is true that the records of many small school fires never reach the N.F.P.A. files; nevertheless, the fact that school fires present a potential serious property loss is obvious. The value of school buildings and their equipment is high, being probably the highest single investment of municipal governments. In many communities the sum allotted for the building of schools, the payrolls, and the operation of school plant facilities, totals around 50 per cent of all public expenditures.

The danger to school property from fire is common to both rural and urban areas. While the greatest fire losses per fire are likely to occur in urban areas, due to the size of the buildings, rural schools are more vulnerable to complete destruction. In towns, where more people can be expected to be on the streets at most hours, fires in schools are more apt to be discovered before they assume major proportions. Fire fighting equipment and water supply are usually more readily available. In rural areas, the converse is true. For these reasons, the problem of how to minimize property losses incident to school fires is a common one to all localities.

What lies behind school fires and how can they be prevented? Records show that their percentage points of origin are as follows:

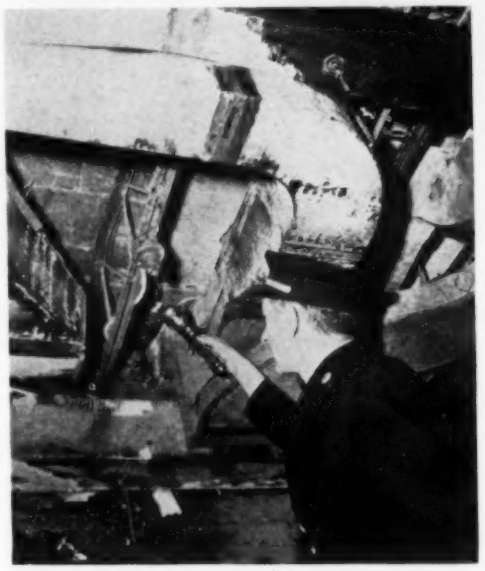
Student areas	36.5
Service areas	34.1
Outside areas	12.4
Domestic areas	.5
Miscellaneous and unknown	16.5

Education in fire prevention and in good housekeeping would seem to be the only way to overcome this problem.

[1]Managing Director, Steel Joist Institute, Washington 6, D. C.

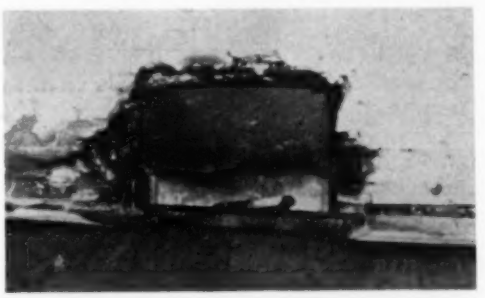
Visual Proof of the Effectiveness of Fire-Resistive Steel Joist Construction

While these photographs were not taken of a school fire, they serve to show that "provided no fuel were added by the structural features of the building — relatively little damage to the structure itself will occur."



A. The Steel Joists were uninjured.

The construction in this case consisted of open web steel joists, supporting 2-in. cinder concrete plank flooring with no ceiling protection to the joists. If there had been a metal lath and plaster ceiling, in all probability, no structural damage whatsoever would have occurred. As it happened, a slight warpage to one steel joist did occur — however, the use of incombustible structural members in building confined the damage caused by the fire to its point of origin.



B. The Woodwork was charred several inches around opening.

This fire started in the basement of a home. The fire was caused by an electric soldering iron, which was inadvertently not turned off after use, coming into contact with wood shavings left on a workbench. The fire spread to dry fireplace logs which were piled next to the bench. It is not known how long the fire raged, as it was not discovered until waking time in the morning, the cellar having been closed since early the previous evening. The pile of fireplace logs was practically consumed when the fire was discovered.

Photograph A shows the condition of the ceiling of the basement after the fire was extinguished. Photograph B shows the condition of the floor immediately above. Note that the only damage to the room above was caused by the hot air which was vented into it through the air conditioning system duct. This heat charred the woodwork for several inches around the duct opening.

How can the loss from school fires, when they do get started, be minimized? On this, more can be said.

Records show that over 90 per cent of all major fires in school buildings have occurred in buildings in which either the entire structure or the interior construction employed the use of combustible structural members. Exterior walls of brick or stone do not free the building from danger of fire. Of the figure quoted above, in over 70 per cent of the buildings, exterior masonry walls were used. It therefore seems logical that the method of overcoming the fire hazard in schools is to eliminate the danger of fire at the point of greatest potential hazard to the building, namely, in the interior structural framing of the school.

Let us examine the problem in this light.

As a result of fire tests made by the National Bureau of Standards, it is now possible to express with a reasonable degree of accuracy the severity of fire hazard represented by a given weight of combustible material in terms of equivalent fire exposure according to standard test specifications. The Bureau has performed burn-out tests with various concentrations of combustible materials — having a calorific value in the range of paper and wood (7000 to 8000 B.t.u. per pound of dry material) — so assembled as to represent building occupancies. The tests were conducted in fireproof vaults. They have shown that the relation between the amount of combustibles present (pounds per square foot of floor area) and the fire severity (expressed in hours of fire exposure) is approximately as follows:

Av. wt. of combustibles Lb./sq. ft. of floor area	*Fire Severity*
5	½ hour
7½	¾ hour
10	1 hour
15	2½ hours
20	2 hours
30	3 hours
40	4½ hours
50	6 hours
60	7 hours

If the average combustible content (weight of combustibles per square foot of floor area) representative of an occupancy can be determined, the above table affords a means of evaluating with reasonable accuracy the degree of fire hazard that exists in such an occupancy because of the fuel content. It also makes it possible to express the hazard in terms of the same fire exposure for the contents of a building and the materials entering into the construction of the building. The fire hazard representative of a given occupancy can be related directly to the equivalent degree of fire protection that is required, once the combustibles involved in the content and the occupancy are known. Note, however, that

High School, Upper Darby, Pa. — Heacock & Hokanson, Architects, Philadelphia, Pa.
An urban school in which Steel Joists were used.

in order to arrive at the *total* fuel content or the *total* conflagration hazard represented by a building and its contents, the fire hazard of the combustible material incorporated into the structure itself must be taken into account.

According to various surveys of school occupancies, the severity of fire hazard as represented by their combustible contents — outside of those incorporated into structural frame of the buildings — is relatively light. Surveys indicate that, in typical classrooms of schools, the combustible contents average from 3 to 3½ pounds per square foot of the floor area, not including floors, finish woodwork, or any part of the structural frame of the building. Flooring will average slightly over 2 pounds in weight per square foot of area, as will the finish woodwork.

From the above, it can be seen that including combustible floors, doors, windows, molding and trim, but not including any combustibles that may be involved in the structural framing, the total weight of combustibles over the entire floor area of the average school may be expected to average about 8 pounds per square foot of floor area, which is, in terms of standard fire tests tabulated above, the equivalent to a fire exposure hazard of less than one hour severity.

It can also be seen that, if school buildings were designed to withstand a fire hazard equal to that produced by the burning of its fixtures, floor covering, and trim — provided that no fuel were added by the structural features of the building — relatively little damage to the structure itself would occur. There would just not be enough combustible material present to destroy the structure if the structural walls and floors were built of properly protected, incombustible material. The fire would be confined to the area of its origin, and would burn itself out there — due to lack of fuel.

It would therefore seem logical to erect the structural elements of the school building of materials which are incombustible and which are within a price range comparable with that of combustible materials. Such a type construction is currently being used in many school buildings and lends itself ideally to this occupancy group. It consists of the use of incombustible structural beams, columns, and walls, all incased in fire resistive material which will furnish the degree of fire protection desired, and the use of steel joist construction in the floor and roof assemblies.

Fire resistive beams, columns, and walls need not be discussed here as their use and composition is well known and has been generally accepted for many years. Although steel joist construction has been in general use for some 40 years and has been given national recognition for over 25 years, it has only been in recent years that it has really been accepted as a standard construction for all types of occupancies.

Steel joist construction may be defined as an assembly of steel joists, top slab, and ceiling below, which forms a floor system with varying degrees of fire resistance.

Fire resistive ratings on this assembly have been established by recognized testing laboratories, ranging from 1 to 4 hours, depending upon the thickness of the concrete slab over the joists and the thickness and type of plaster used as ceiling protection.[2] The steel joists themselves act as a support for the metal lath form which is used as reinforcement for the top concrete slab, and ceiling lath may be applied directly to the bottom chords of the joists. It is easy to erect and can be installed without the use of expensive construction equipment, thus adapting itself ideally for use in rural areas.

Adequate protection against the spread of fire can be assumed from the use of steel joist construction, because any fire which might get started in such a structure will be confined to the part of the building in which it originates.

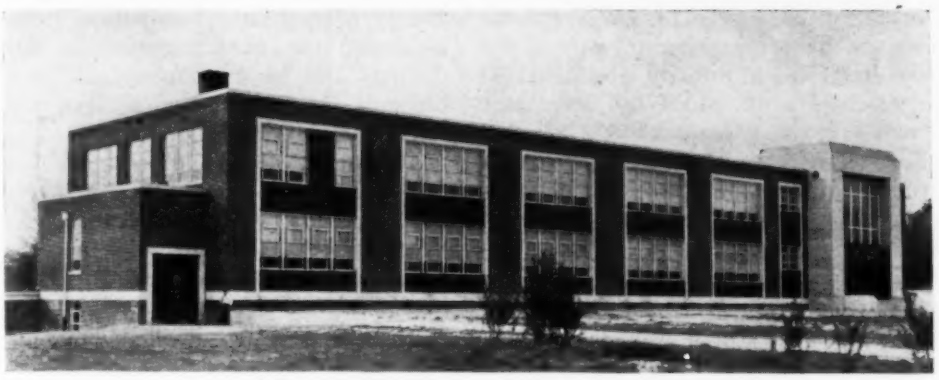
As stated before, steel joists have been used as a recognized building product for many years. In 1855, the first light structural members were used in building the State of New York Bank in New York City. These joists were cold-formed from iron sheets, with webs and flanges riveted together. They were still functioning satisfactorily in 1903 — nearly fifty years later — when the structure was demolished to make way for a more modern building.

In 1908, quantity production of formed steel joists was started. They were made of sheets formed into channels and welded back to back, giving the appearance of light I beam sections. Later, a structural section — consisting of a strip steel web and four light angles assembled by means of spot welds into the form of a girder — made its appearance.

By 1920, architects, engineers, building officials, and insurance rating bureaus were recognizing and adopting this type of construction as standard.

In the year 1923, the first open web joist made its appearance. It was produced in the form of a Warren truss, in which the chords consisted of two round bars and the web of a single continuous bent bar. The chords and webs were thus made of considerably sturdier sections than those found in pressed steel joists, with little or no increase in the weight of material used. Assembly was accomplished by means of electric arc welding. The bearing ends were made 2½ inches deep in all cases by bending up the bottom chords near the

[2]These fire-resistive ratings can be found in most modern building codes, the ***Building Materials and Structures Report BMS-92***, as published by the National Bureau of Standards, and the ***Handbook on Steel Joist Construction*** (1946 edition), as published by the Steel Joist Institute. They are too lengthy to copy in this article, but will be furnished upon request by the Steel Joist Institute, 1200 Eighteenth Street, N.W., Washington 6, D. C.



High School, Falls Church, Va. Virginia State Department of Education, Division of School Buildings, Architects.

An example of typical modern suburban school, in which erection the use of Steel Joist Construction was employed.

supports. Open web joists were thereby made inherently stable against overturning, resulting in more speedy and less costly erection. While this type of end bearing is still considered standard, some manufacturers of open web joists are producing joists of other designs, to accommodate special job conditions.

The design of steel joists has been constantly developed and improved since their first introduction. Open web joists are now made by expanding and forming one piece of metal into open web joists, and by assembling several pieces of metal into a joist by welding. Some manufacturers use fusion welding, others resistance welding.

In conjunction with the U. S. Department of Commerce, the Steel Joist Institute has effected a complete standardization of a full range of open web joists, by adopting "Simplified Practice Recommendation R94-30." This recommendation shows the properties and allowable total loads in pounds per linear foot of open web steel joists and is the Official Loading Table for the Steel Joist Institute.

Although steel joists were developed primarily to provide a rigid, fire-resistive, durable, and relatively light floor construction, there are other marked advantages for their use in school buildings.

For example, steel joists are completely standardized as to lengths, depths, and carrying capacities. They are completely shop fabricated. They reach the job site tagged and ready for immediate placing, needing only to be hoisted into their proper place and to be attached to supporting members.

The joists can be placed immediately after the main supporting members are erected and, if desired, walls can be built up to the succeeding stories and the entire structure closed in before the concrete slabs are poured.

The use of open web steel joists permits ready passage of pipes and conduits through the openings in all directions, thus providing concealment at little or no added cost.

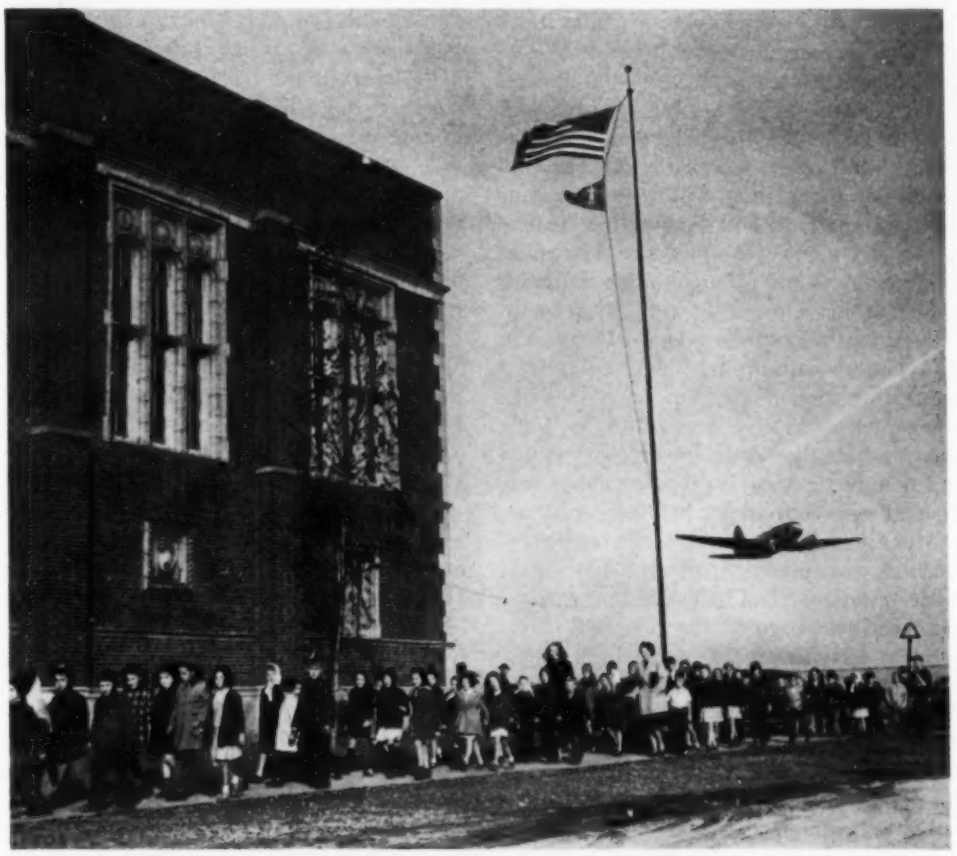
The lightness of steel joisted floor systems also helps to provide economies in the design of the structural frame of buildings, making it possible to effect economies in the size of framing members. Its economies are even reflected in the design of foundations of projects, due to the saving in dead weight of the construction. Where bad soil conditions are encountered, the lightness of steel joist construction makes its use particularly desirable.

Steel joist construction is not expensive construction. To quote a prominent firm of architects in the Middle West: "We are satisfied that under present conditions steel joist floors and roofs are less expensive than reinforced concrete and very little, if any, more costly than wood." Steel joisted fire-resistive construction has rapidly expanded its field of usefulness to a point where many million square feet of floors and roofs are being installed annually. Exhibiting definite advantages, it has established a real place for itself in the building industry.

COUNTY SCHOOL COMMITTEES IN WISCONSIN

Under a law passed by the 1947 session of the Wisconsin legislature, county school committees have begun work for readjusting the school districts of their respective counties to provide better educational opportunities and to even up educational costs on an economic basis. The committees consist of six laymen, three representing rural areas and three appointed from city or town school districts. Working with the county superintendent, the committees are authorized, after a public hearing, to alter, dissolve, consolidate, or create school districts. If they see fit, all schools of a county may be organized in a single district.

While it is expected that the committees will make long-range plans for district organization, numerous immediate problems must be solved. Their first responsibility will be to pass on tuition costs in excess of $5 per week per child. Then they will be asked to approve the attachment of some 1200 suspended districts which do not operate a school but send their children to a neighboring district and pay tuition. These districts will receive no state aid after the end of the present school year and will thus be discouraged from continuing to exist. An effort to place all inhabited territory in the state in a high school district is another problem for some committees in the northern counties.



How Not to Locate a School Building

When the Nathan Hale School, Chicago, was built, it was located in an open area in which modest homes were being erected. Then the city bought the adjoining unoccupied blocks of land for the Municipal Airport. Now, across from the playground, large airliners are coming in and taking off at all hours of the day. The hazard is so high that special so called "fire" drills are held to minimize the possibility of disaster and panic. The giant airliners frequently skim over the building. (Chicago Sun Photo)

The American
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Edited by
Wm. Geo. Bruce and Wm. C. Bruce

SCHOOL BUILDING CONSTRUCTION IN 1948

THE year 1947 has contributed much to the confusion of the schoolhousing situation and little to the alleviation of the plant problems of school boards. Costs of construction have continued to rise; labor has lost rather than gained in efficiency; materials are still scarce and have not improved in quality; there is evidence that financing will be more difficult because of the increased demands of other divisions of local and state government for the tax dollar; federal housing and economic policies point to higher interest rates. In spite of all these facts schoolhouse contracts let rose to 250 million dollars and bond issues exceeded 300 million dollars.

The total backlog of school plant needs is variously estimated at 7 to 11 billion dollars and there are numerous signs that in 1948 the school boards will break through the dammed up obstacles to provide their children with needed buildings. The conservative FWA forecast anticipates outlays for school buildings of 300 million dollars, and other authorities foresee contracts for more than 350 to 400 million dollars. There is good hope that federal efforts to stave off inflation will make prices of steel and other building materials more stable before the end of the year. Contractors will then be able to make less wild guesses concerning their costs. It is interesting that New York City, unlike other metropolitan communities, is going ahead with a big program of construction and now has more schoolhouses under way than at any time in its history.

Much progress has been made during the year in the planning of over-all school plant programs, and still greater progress has been evidenced in the planning of individual schoolhouses. Great help has been found in the 1946 recommended standards of the National Council on Schoolhouse Construction, in four state and two city bulletins, and in a special publication on the planning of facilities for physical education and athletics. The leadership of the physical education and recreation group should encourage the science teachers, the industrial arts and vocation teachers, and other special teachers to do group research in the field of planning.

During the past year the planning of the classroom for the varied activities of elementary class groups has challenged the imagination of architects, particularly those interested in primary education and in preschool work. Much has been done to make the rooms adaptable to group and individual work without sacrificing the instruction of an entire class. Genuine progress has been made too in improving the natural and artificial lighting, unit ventilation, and equipment for varied activities and academic study. If schoolmen and architects have been unwilling to accept the new high standards of artificial illumination, they have done much to better over-all conditions by means of light colored furniture, chalkboards, floors, and wall finishes.

The adaptation of modernistic design to the postwar school plant seems to be universal and not altogether successful. Its acceptance seems to be based more on the necessity of holding down costs by eliminating ornament and allowing the open plan to result in a lack of balance, than on a conscious understanding of the philosophy of the modern art movement. As a result many of the designs are difficult to distinguish from office buildings, commercial laboratories, or even factories — the basic elements are identical and the especial quality of the educational processes and the use by small children and younger adolescents is wholly lost on the observer. There is too a lack of correlation with the immediate surroundings of the new buildings and a failure to appraise and harmonize them with the spirit of the community. It will be necessary for architects to further study the inwardness of the modern idea of architectural design before we shall enjoy the satisfying qualities which such pioneers like Gropius and Saarinen have built into their schools. In this connection, some of the recent Dutch, English, and Swiss work, and even some of the overambitious Italian work deserves study.

The financing of school plants in 1948 will be based more than ever on bond issues. Unfortunately, the efforts of the Federal Government for controlling inflation, the expected reduction of income taxes, and a general reaction against exceedingly low interest rates have raised the average cost of first quality municipal bonds from a low average interest rate of 1.5 to slightly in excess of 2 per cent. Unfortunately too, the increases in teachers' salaries and the rise in all current operating expenses have reduced the ability of school districts to levy annual taxes for pay-as-you-go building outlays. In all too many communities the bonding capacity is too low to meet plant needs under present excessive building costs and relief must come from state or federal sources. The former offer greater possibilities through legislation for the enlargement of school districts and for continuous aid, on the order of the Florida law, through which reserves can be built up.

The year 1948 should see a revival of school plant construction to a marked degree. It is criminal that in states where there is the highest industrial prosperity, children in considerable numbers should be housed in buildings which are fire hazards, that they should study in damp and insanitary classrooms, and that half-day sessions should be tolerated. The enrollment in kindergartens and primary grades has risen measurably in practically all cities and the new entries are likely to continue at high levels for four or five years. All this means that it is seriously wrong to wait for the complete stabilization of the materials markets and building industry. The young children need adequate schoolhousing now and it is the responsibility of the school boards to provide it.

THE PASSING OF NICHOLAS MURRAY BUTLER

THE death of Nicholas Murray Butler removes from the American scene an educator whose magnificent services have been somewhat dimmed during his declining years. Had he died in 1920, his passing would have been marked by deep and genuine regret on the part of educators at every level of school service.

Dr. Butler's important work was performed between 1895 and 1920 when he successively launched *The Educational Review*, organized Teachers College, broadened the scope of Columbia University, and brought together within its halls an outstanding faculty of scholars and specialists in education, economics, history, international affairs, oriental life and cultures, and modern and ancient languages. Unquestionably, many of the men to whom he offered complete academic freedom, went far beyond and even contrary to his own views. To what extent they helped or harmed American education and American life and culture cannot now be estimated. An evaluation of their effect on the total stream of life in the United States must await a later perspective.

The great enrollments of Columbia University, its huge endowments, and its present vast influence are Dr. Butler's monument.

THE GOAL OF ALL TEACHERS

In peace or in war, in adversity or in prosperity, the children must come first in all our deliberations and actions. — *Joseph F. Landis.*

A true master of his subject can generally explain it. — *Curtis Dahl, University of Tennessee.*

A Classroom for Primary Schools

J. Chester Swanson and Fred W. Hosler

The Allentown, Pa., public schools are building two primary schools. The philosophy of the primary schools as a part of the city school system was presented in a previous article in this JOURNAL. Description of the planning and design of a four-room primary school was also presented in this JOURNAL recently. This article is to describe somewhat in detail certain features of the classrooms that are a part of two primary schools now under construction in the city of Allentown, Pa.

Teacher committees at the kindergarten, first-, second-, and third-grade levels worked with the architects and the administrative staff in determining the features of the classrooms in such a building. It was the purpose of the various planning groups to make these classrooms more attractive, more flexible, and in every possible way a room which would improve the general efficiency of instruction. Many of the features are not new, but the inclusion of all these features in a single room with certain unique additions will be interesting, we believe, to many who are thinking in terms of a new building.

The rooms are heated by radiant heat in the floor, and a unit ventilator provides additional heat and proper changes of air. There is asphalt tile on the floor with the exception of an area around the wash basin, drinking fountain, and clay table, which is designated as the wet area, and has a colored concrete floor with a drain.

Figure 1 shows the general plan and layout of the room in relation to the hall, office, and other classrooms. The general layout will be discussed and reference made to this figure throughout the article. Figures 2, 3, 4, and 5 show the elevation of each of the walls and illustrate the general distribution of the blackboard, windows, and glass block areas.

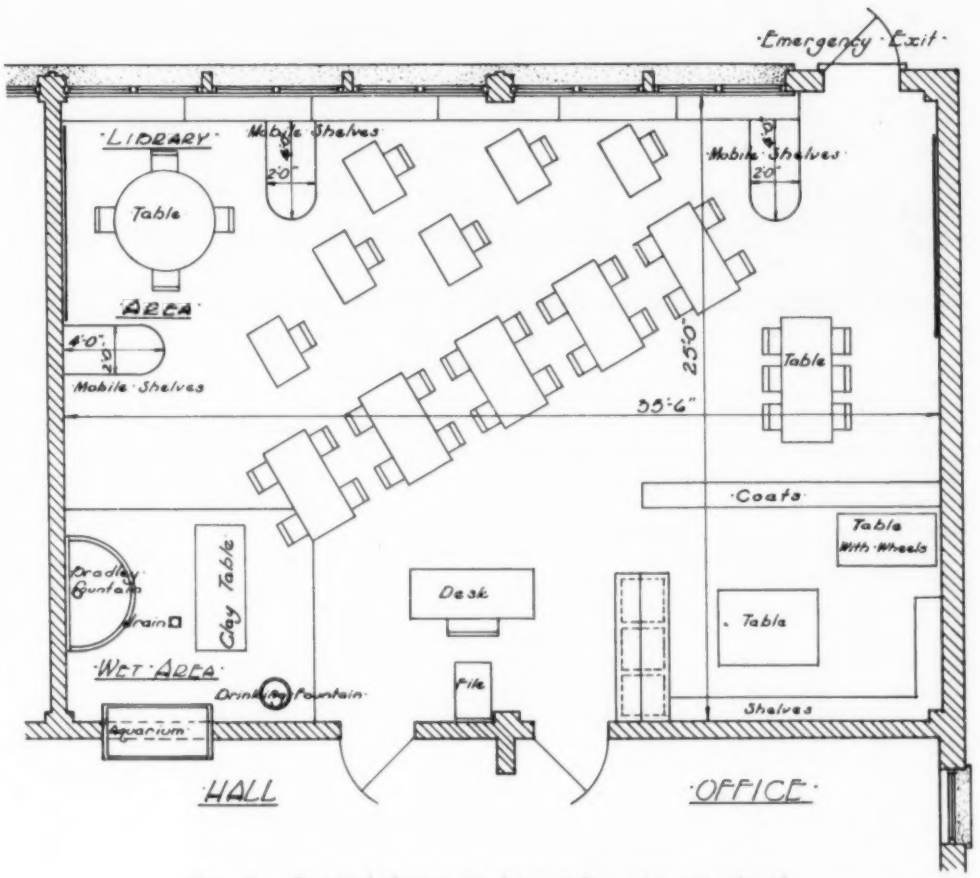

Fig. 1. Typical classroom layout for primary school, Allentown, Pennsylvania.

It can be seen that light enters the room from three different walls. The main outside window wall is shown in Figure 2. There is a door in this wall that leads directly to the playground area. Shelves are placed underneath the windows through the whole length of this wall and are available for individual students and display and reference materials. The window sills are 30 inches from the floor with a clear glass window in an aluminum frame of a height of 3 feet. Above the window is a 6 foot area of prismatic glass block. The location of one of the germicide lights in this room is shown above the door in this wall.

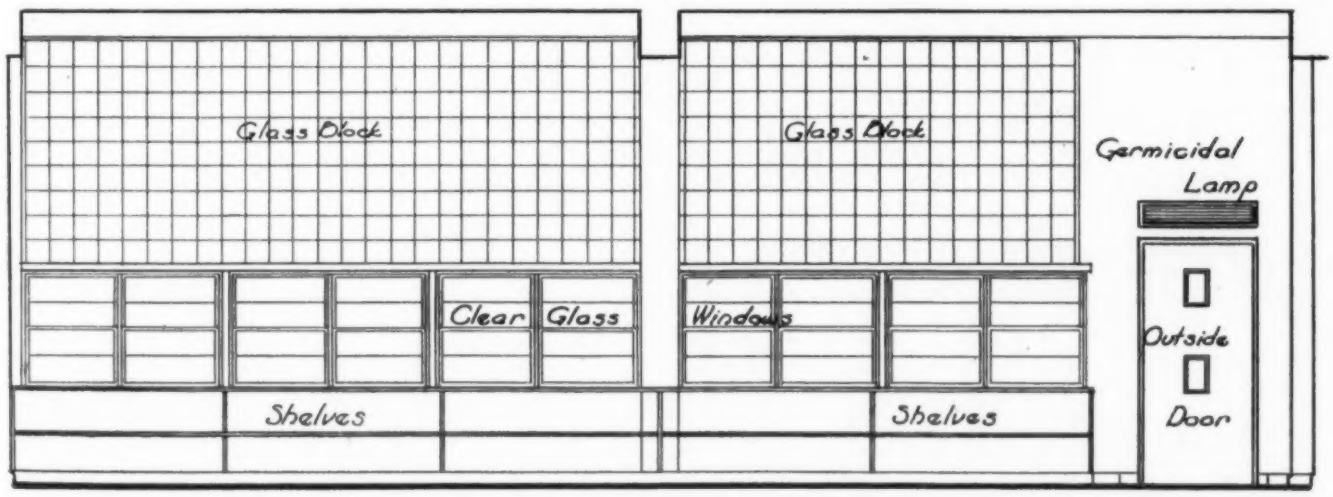

Fig. 2. Elevation of outside window wall.

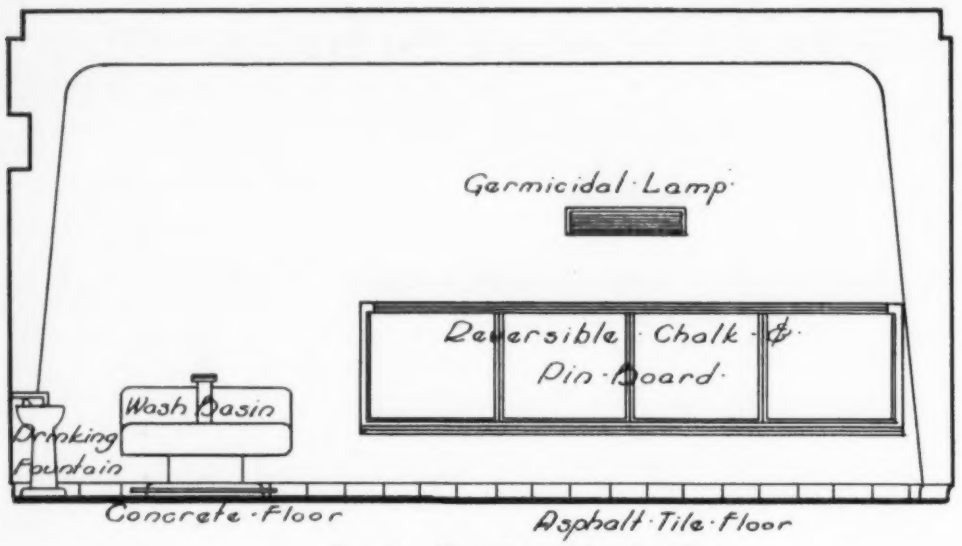

Fig. 3. Elevation of front wall.

The front wall of the room is shown in Figure 3. The location of another germicide lamp is shown. A strip of reversible chalk and pin boards is located in this front wall. These boards may be lifted out and reversed. On one side it is a light green colored chalk board. On the other side combination cork material or thumbtacking material is on the surface. These boards are also provided with an extension at the chalk trough level which will permit these boards to be placed at an angle and provide an easel on which children may work. This same type of board can also be seen on the back wall (Fig. 5).

The front elevation shows the location of the wash basin or better termed the wash fountain. It is a piece of equipment which is not generally found in a classroom, but is often found in industrial shops. It is a large semicircular basin with a rod at the bottom which, when stepped on, produces a fountain-type spray from the head of the fountain, covering the whole semicircular area of the fountain. This means that five to ten children may wash at this fountain at any one time and still be in complete view of the teacher. At the side of the room in this same area is a drinking fountain made of material which matches the wash fountain. The floor in this area is made of colored concrete with a drain so that any spilled or splashed water is taken care of and does not produce general wet conditions throughout the room.

On the inside wall (Fig. 4) the wash fountain and drinking fountain also appear. An aquarium may also be seen in this area between these two fountains. This is a large, rather deep, aquarium which is built in the wall and can be seen from both the hall side and the classroom side. A wire top on the aquarium prevents anything being thrown in or material in the aquarium being disturbed. On the outside of the room in the hall area, this aquarium becomes a decorative feature of the building. On the inside it provides a point of interest and an element which may be used in the instructional program.

This inside wall elevation shows that light enters between the 10- and 12-foot space in the classroom from above the roof over the hall and office areas. This wall also has a door which enters directly into the office. This particular room is intended for the head teacher who acts as principal and therefore maintains the office for school records and for interviews with patrons. The third germicide light is shown in Figure 4 above the office door. At the right end of this wall is shown the area which is used as a cloak closet where children hang their coats, leave their overshoes, hats, and books. This is shown more in detail in Figure 6 and is discussed when this area in the room is described more in detail.

The back of the room (Fig. 5) shows another large glass block area providing another appreciable source of light to this room. The glass block used in this room is a prismatic glass block which is designed to carry light rays to the ceiling for reflection into other parts of the room. The back of the room shows the coat area, a work area, and cabinets. These cabinets will be described later in the article and are shown more in detail in Figure 7.

In Figure 1 is shown an area blocked off by a coat rack fixture and a cabinet and cart fixture. This is 12 feet square, and the pieces of equipment serve to partition it from the room. It is a combined work and storage area and is provided with shelves, a permanent table, and a movable table. A teacher can use this area for her own work or also can send children there to perform work projects which for certain reasons might be better performed in a somewhat secluded area than in another part of the room. The coat and cabinet fixtures are only 5 feet high and therefore do not make this area a particularly dark corner. Light enters this area directly above on both of its interior walls.

The coat rack fixture is illustrated in Figure 6. It is of simple construction made in our school vocational shops and has proved highly satisfactory in primary grade classrooms in which it is now in use. It will be movable, and if for any reason the teacher would prefer not to use this type of a "fenced off"

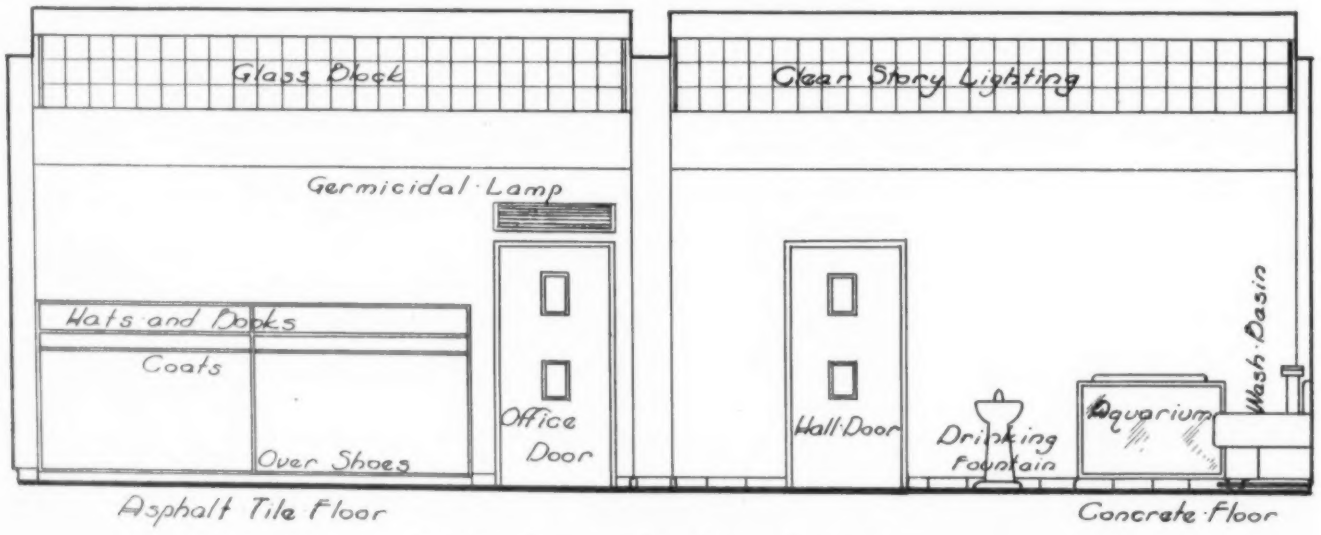

Fig. 4. Elevation of inside corridor wall.

work area, it can be placed against the wall. The other section of this equipment consists of a cabinet and worktable area very similar in design to the familiar old kitchen cabinet. This is shown in detail in Figure 7.

The base of this work area houses two carts on rubber tired wheels which can be used in all parts of the room. This serves as a place to store commonly used materials when they are not actually in use. The table area is a low height which can be readily reached by children of this age in a standing position. The storage cabinets above provide facilities for the teacher to store materials which would be commonly used at this table. The back of this cabinet would provide hooks for the teacher to use as her coat closet if she did not want to use the cloak closet provided in the teachers rest room in this building. The general objective of the design of this work area was to provide a storage

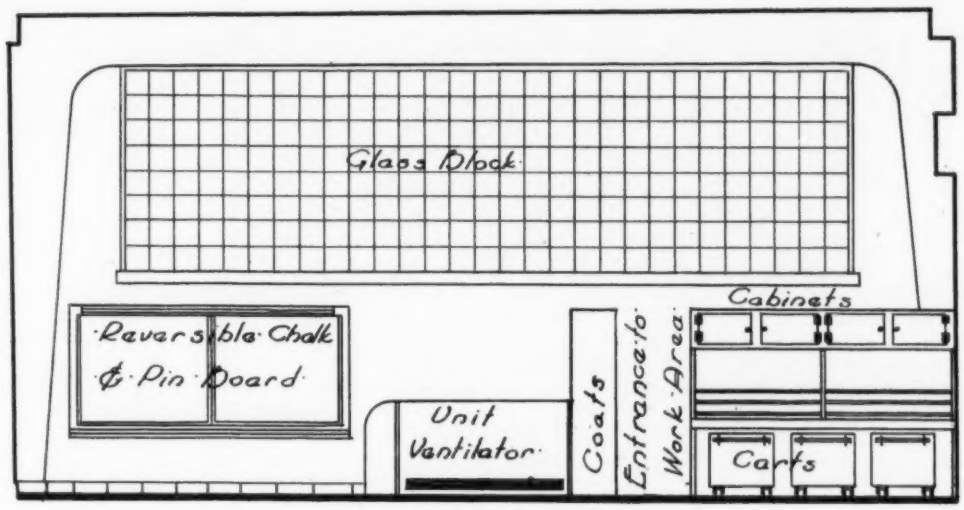

Fig. 5. Elevation of back wall.

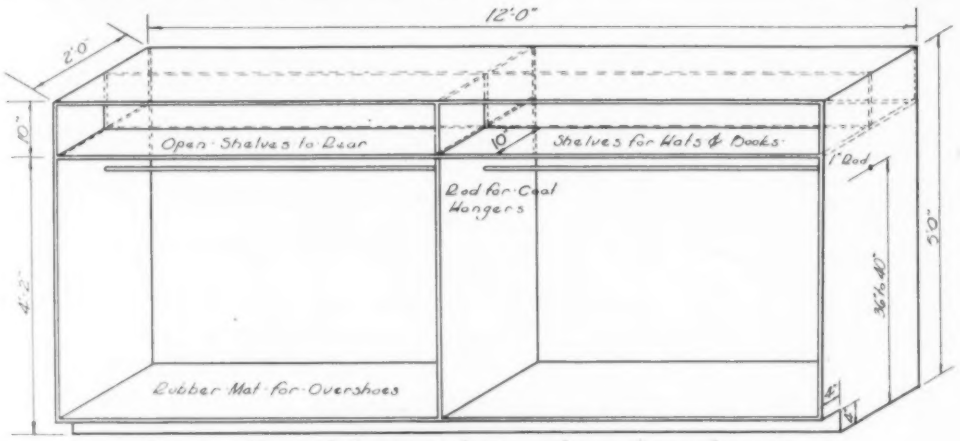

Fig. 6. The rack for coats, hats, and overshoes also acts as the wall of the work area.

and work area not readily visible from the classroom proper and yet to give a maximum supervision by the teacher.

The classroom is equipped with tables and chairs made in our own vocational shops. The chairs are fabricated from stainless steel tubing with padded seats and backs covered with very colorful plastic material. The chairs are very light, and their color adds to the general attractiveness and uniqueness of the room. The tables are made from the same stainless steel tubing bent to form legs as commonly observed in modern furniture. The top is of a bleached maple finished in its natural light tan color. As the illustration shows, various sizes of tables are used. The different sizes are used in order to provide the teacher with the possibility of flexibility in seating various pupils. Pupils may be seated individually, in groups of two, or in groups of eight.

Certain projections appear in this room which are movable counter height bookshelves. These pieces of equipment are used to "fence off" certain areas of the room for a library area, an art area, or other types of activity which the teacher may desire. They are portable and can be placed as the teacher so desires. A filing cabinet and a desk are provided for the teacher and are constructed of materials similar to the desks and chairs used by the pupils. An additional piece of equipment which is a part of this classroom is a very small three and a half octave piano mounted on bent steel tubing very similar to that of which the chairs and tables are constructed. This piano is very light, comparatively inexpensive, and fits in very well with the general tone of a primary classroom.

The teacher group and the architects who have worked with the staff in the design of this classroom are highly enthusiastic with the appearance, flexibility, and utility of the room and its equipment as a whole. By using teacher committees and our vocational shops, the whole building and its equipment has been a focal point of interest to our whole school system and to our community.

A parent-teacher group has been active in the area in which these buildings are being constructed for more than a year before actual beginning of the project. We hope to use many of the features in this classroom as a model for refurnishing and refinishing many of our present elementary classrooms.

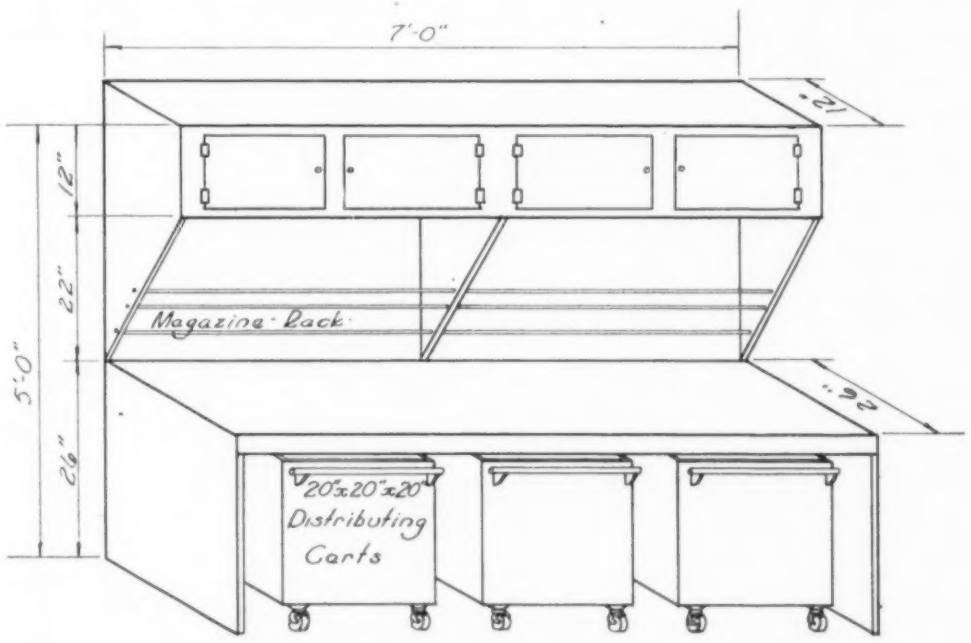

Fig. 7. The magazine and storage rack serves as portion of the wall of work area.

Is the Use of Germicidal Aerosols Feasible in Schools?

*Paul W. Seagers**

The dispersing of smoke, chemicals, perfumes, and other substances into air to drive away or appease the "evil spirits," long associated with disease and misfortune, antedates recorded history; however, one of the first scientific approaches to air sterilization, other than fumigation, was conducted by A. T. Masterman[1] in 1918 when he used solutions of hypochlorite in the humidifiers of the Lancashire Cotton Mills. Since this time a number of scientists throughout the world have raced to give us air in confined places which is relatively germ free. Limited space will permit mention of only a few efforts to show the trend.

In 1928, Douglas, Hill, and Smith[2] used a fine spray of electrolyzed sea water containing $NaOC_1$ with about 1 per cent of chlorine and "were able to effect a marked or complete killing of Bacillus Coli dispersed in the air." The concentration used was 1 gm. of solution in 2 million cc. of air. In 1938 M. A. Trillat wrote an article on germicidal aerosols for the Bulletin of the Academy of Medicine in which he states that he had tested the efficiency of a number of bactericidal compounds and found resorcinol and sodium hypochlorite satisfactory except that sodium hypochlorite becomes disagreeable after a period of time. Twort and Baker [3, 4] suggested hexylresorcinol and resorcinol as the two phenols best suited for use in disinfecting the air. Then Pulvertaft and Walker[5] in England extended Trillat's and Masterman's work and recommended a solution of resorcinol in glycerol and water. It was then found in this country that when propylene glycol is used as the vehicle in place of aqueous solutions the aerosol activity increased; and it was subsequently found that propylene glycol and other related glycols are in themselves effective. Propylene glycol was found much more effective in vapor form than in atomized mists or droplets.

Robertson[6] and associates made several tests to find out the effect of propylene glycol on staphylococcus albus. They found out that upon spraying the test chamber with propylene glycol the colonies of staphylococcus dropped from 2124 to 3, while those in the control chamber dropped from 2140 to 1940. In 15 minutes they were completely killed in the test chamber, while 510 colonies remained in the control chamber. They found that complete sterilization took place using a mixture of 1 to 2 million.[7] Trimethylene acted about the same. About the same effects were also demonstrated upon pneumococci, hemolytic streptococci, H. influenzae, and H. pertussis in the test chamber. They also found that the addition of hexylresorcinol to propylene glycol increased its effectiveness over a longer period but not immediately; thus because of this fact and the greater potential toxicity of its use, except in exceptional circumstances, is thought undesirable. Robertson states "atmospheres containing propylene glycol vapor are invisible, odorless, and nonirritating; this glycol is essentially nontoxic when given orally or intravenously."

After demonstrating the effectiveness of glycols under laboratory conditions the next natural step was to determine how they acted under normal living conditions. This was complicated because of the need for designing the equipment and apparatus to vaporize the correct quantities for air sterilization and yet not fog the atmosphere. Wells[8] found that "an ordinary heating element submerged in a beaker of propylene glycol will evaporate upwards of a grain per minute." In England[9] a Phantomyst machine was developed for this purpose. It used the principle of mixing propylene glycol with other compounds and vaporizing it by means of a container like the aerosol bomb used in killing mosquitoes. A "glycostat" was developed by Puck[10] and others. This used a photocell which was ineffective where dust and tobacco smoke was present. A newer design of the "glycostat" appears to be fairly accurate in controlling glycol vapors within the range of minimum concentration for bactericidal action and maximum concentration where fogging appears. Still other controls were developed during the war by the Canadian and American armed forces. While considerable progress has been made in the development of vaporizing equipment, nevertheless the control of triethylene glycol is still difficult and is not recommended for small rooms.[11] It takes a smaller concentration of triethylene glycol than propylene glycol to be bactericidal, .0018 mg. per liter to .0033 mg. per liter as against .048 mg. per liter to .094 mg. per liter; however, the small range between the bactericidal concentration and its precipitating concentration (when it forms fog or condenses on the walls or windows) confines the use of triethylene glycol to large rooms equipped with sensitive "glycostats."

Robertson and others [12, 13] used both propylene and triethylene glycol vapors in protecting mice against infection from air-borne influenza virus. They found that both vapors are effective and that the experimental mice lived while the control mice died within 4 to 10 days from influenza. They state "the action of the propylene glycol vapor on the virus droplets is exceedingly rapid and may approach the rate at which glycol vapor kills bacteria suspended in air."

Harris and Stokes [14, 15] made a three-year study of the control of air-borne cross infection of the common cold at the Children's Seashore House at Atlantic City, N. J. Both propylene and triethylene glycol were used. This institution being a convalescent home, where the patients were mostly bedfast, precluded, to a high degree, infection by direct droplet hits or direct contact. The study was divided into three-week periods in three wards on two floors. After three weeks the control groups became experimental and the experimental groups became control. They concluded that "a marked decrease was observed in the total rate of incidence of upper respiratory infections (coryza, tracheo-bronchitis, nasopharyngitis, and otitis media) among those patients whose air supply was largely disinfected by glycol vapor."

Hamburger, Puck, and Robertson[16] using triethylene glycol in several wards of an army hospital at Chanute Field, Ill., found that in the scarlet fever ward "the vapor reduced the number of air-borne beta hemolytic streptococci" anywhere from 38 to 100 per cent. "In two German measles wards, streptococcal cross infections ceased following the introduction of triethylene glycol vapor." "Determination of the total numbers of bacteria in the air of the wards studied showed a diminution of 32 to 75 per cent during the period of glycolization." They also found "that maximum effectiveness of glycol vapors in suppressing air-borne pathogenic bacteria in hospital wards probably requires the accompanying action of dust and lint control measures."

Several men from Northwestern University[17] studying the effect of triethylene glycol on air sterilization in two barracks housing

(Concluded on page 60)

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Donald K. Phillips
Superintendent of Schools
New Rochelle, New York

Donald K. Phillips, recently appointed superintendent of schools in New Rochelle, N. Y., assumed the office on January 1, 1948. He was inducted into office at ceremonies held in New Rochelle on December 4, with Dr. George M. Davis, Jr., president, and other members of the local board officiating.

Mr. Phillips, who comes to New Rochelle from the superintendency in Rutland, Vt., succeeds Dr. Herbert C. Clish, who resigned last summer to head the San Francisco, Calif., school system. Mr. Phillips, a graduate of the New York City schools, received his bachelor's degree from Columbia College and his master of art's degree from Teachers College, Columbia University. He has had 14 years' experience in teaching and supervising orchestral and vocal music in the New York City public schools. In 1944 he was chosen as first assistant assigned to the Division of Housing and Business Administration in the New York City Schools, serving until two months prior to going to Rutland, during which period he performed confidential work for the New York City board of education.

In New Rochelle, Mr. Phillips will administer the educational system of a city of over 60,000 persons, located within the metropolitan area of New York City. The city, one of the oldest on the Atlantic Coast, lies on the waters off Long Island Sound, located some 15 miles north of New York City. The school system comprises ten elementary schools, two five-year academic high schools, and a vocational-business high school. As he undertakes his work in New Rochelle, Mr. Phillips comes to a community which is proud of the support it gives to its educational program — considered one of the best in the metropolitan area.

Efficient Tools for a Vital Need

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GERMICIDAL AEROSOLS IN SCHOOLS?

(Concluded from page 58)

three groups of 640 men at six-week intervals found (1) "that a reduction in total bacterial air contamination was produced"; (2) "hemolytic streptococci were practically eliminated from the air of glycol-treated dormitories"; (3) "a definite reduction in air-borne infection was effected"; (4) "control of a small epidemic of mumps was attained"; (5) "prevention of spread of hemolytic streptococci from the throat of one individual to another was demonstrated."

In using propylene glycol as a bactericidal aerosol in an R.C.A.F. Barracks, Mather and McClure[18] concluded that "in a concentration of less than 0.1 mg. per liter of air it did not lower the incidence rate of respiratory illness nor the streptococcus haemolyticus carrier rate during a season when these rates were already abnormally low. When present in a concentration greater than 0.1 mg. it is definitely bactericidal, but it is not practicable to maintain this concentration in the present type barrack block."

Robertson[19] says that propylene glycol mist is reported to retain its effectiveness an hour and a half or more; that it is more effective and less costly than ultraviolet ray equipment which has recently been used to kill germs in the air of hospitals, nurseries, and schools. Since several experiments[20, 21] in ultraviolet irradiation have been conducted since he made this statement it might be well to question it. Probably we shall find that ultraviolet irradiation is much more easily controlled; also that one may work much better than the other in different climates.

We may draw several conclusions from the experiments to date:

1. "The practical effectiveness of glycol vapors in the control of infections acquired via the respiratory tract depends primarily upon how large a proportion of these infections is air-borne."[22]

2. More adequate dust control will increase the effectiveness as dust and lint particles appear to shield bacteria from the effect of the bactericide.

3. Propylene glycol vapor, in small concentrations is effective in the air against pneumococci, streptococci, alpha and beta, staphylococci, H. influenza, H. pertussis, esch. coli, M. catarrhalis, B. subtilis, and influenzae A. virus.

4. Triethylene glycol acts about the same as propylene glycol but in concentrations which are about one fiftieth as great.

5. Glycol action is most effective in relative humidity of 35 to 50 per cent. There is some little effect as low as 20 per cent; however, at 75 per cent or more the air cannot hold enough glycol to be of any value.

6. Low temperatures enhance the action of glycol vapors while high temperatures depress their effectiveness. Temperature of 72° F. or lower provides for the greatest action.

7. The ideal concentration is just below saturation of the atmosphere. This is more difficult to attain for triethylene than propylene glycol because of the small range between its bactericidal concentration and its precipitating concentration.

8. The vaporizing temperature of the glycols should be kept below 206° F.

9. Both glycols show no fire or explosive hazard, are not toxic and have no effects upon fabrics in the recommended concentrations; however, the vapor of propylene glycol produces tackiness on certain varnishes and finishes.

10. Vaporizers and control-stats are being perfected.

Can we use germicidal aerosols effectively in schools? The type of climate will determine first the answer. The relative humidity in the room should stay within 35 to 50 per cent and certainly not less than 20 per cent nor more than 70 per cent. Too cold or too hot and humid climates preclude the use of these aerosols. Room temperatures should exceed 72° F. by very little; thus some types of rooms and activities could not be protected. Some form of dust control should be maintained either by sprays, filters, or precipitators. The problem of precipitation on the walls of the ducts in a central fan ventilation would limit its use there. Rooms with window ventilation would present a special problem in maintaining the proper concentration. The unit ventilation system would lend itself to the use of glycol vapors better than any others and the addition of a wall hung fan would probably aid the diffusion of the glycol.

Thus we see there is no general answer to the feasibility of the use of germicidal aerosols in schools. One must apply the known facts to each individual case. If the controlling factors of humidity, temperature, dust control, and type of ventilating system are generally favorable for the glycolization of the air, probably the resulting effectiveness in controlling air-borne infections can justify reasonable expenditures for equipment and glycol.

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Teachers' Salaries

SHELBYVILLE SALARY SCHEDULE

The school board of Shelbyville, Ill., has adopted a new salary schedule for 1947–48, providing a base salary of $2,400 per year, and annual increments for experience up to the maximum. New maximum salaries have been set for teachers holding degrees. Teachers with a B.A. degree will start at $2,400 and go to $3,300 in the fourteenth year of service. Those holding M.A. degrees will begin at $2,600 and go to $3,800 in the twentieth year. No teacher may receive an increase of more than $500. Heads of families will receive $200 additional pay; those with an M.A. will be paid $200; and those with an M.A. plus one year, $400.

EDWARDSVILLE ADOPTS NEW SCHEDULE

The board of education at Edwardsville, Ill., has approved a new single-salary schedule for 1947–48 which is applicable to all members of the teaching staff. The schedule is the co-operative effort of a volunteer committee, representing the school faculty and working under the supervision of Supt. E. L. Alexander. The schedule as adopted, represents the recommendations of the superintendent, the teachers' committee, and the committee of the board.

Under the schedule, teachers holding bachelor's degrees will be paid a base salary of $2,200, with nine annual increments of $100 each. Teachers having master's degrees will receive a base salary of $2,400, with 11 annual increments of $100. Those having earned 16 semester hours in the teaching field above a degree will receive an additional $100 increment.

Teachers entering the system directly from another school system will receive experience credit of not more than one half of the time spent in another school system. The maximum for such experience is five years.

The minimum educational requirement for teachers entering the system is a bachelor's degree from an accredited institution of higher learning. The provision is not retroactive and teachers who do not possess a degree will not be dismissed. The maximum salary for a teacher without a degree is $2,900.

► Pittsfield, Mass. The school board has adopted a maximum salary setup, providing a maximum salary of $3,300 for teachers with two years' preparation; $3,500 for those with three years' preparation; and $4,000 for those with four years' preparation. Maximum salaries of $2,400 for clerical personnel have been approved.

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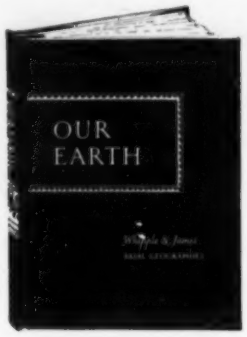

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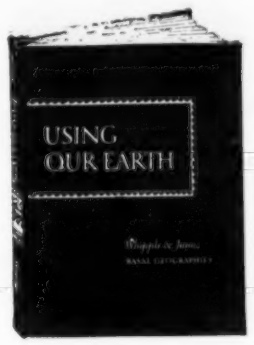

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New Books

How to Choose a School Site

By Ralph D. McCleary. Paper, 16 pp., $1. Published by the New England School Development Council, Cambridge 38, Mass.

A report on the choosing of a school site, prepared by the committee on new building plans and procedures. The report urges co-operative planning in the location of a new school site, taking into consideration safety problems, topographical characteristics, architectural implications, difficulties of selection and acquisition, and includes a brief check list summarizing the best opinion of experts in school planning.

Conducting a School Building Program

Prepared by Dr. Jesse B. Davis. Paper, 10 pp., $1. Published by the New England School Development Council, Cambridge 38, Mass.

This report which calls for a scientific approach to the planning of a school building program, sets up a definite policy including the selection of an educational consultant, the adoption of an acceptable forward-looking program, the preparation of floor plans by the architect, and the selection of furniture and equipment. The preparation of the preliminary plans should include (1) the plot plan, (2) the elevation, (3) the cross section, (4) a model of the building and grounds, (5) the final plans and specifications covering construction, heating, plumbing, and electrical work.

Long-Range Planning of School Plants

Prepared by a committee headed by Mark R. Shibles. Paper, 12 pp., $1. Published by the New England School Development Council, Cambridge 38, Mass.

A report prepared for the use of member school systems in a study of problems common to all communities in connection with the advancement of education. It points out what the school committee should know in beginning the setting up of a long-range school development program. The material outlines a series of five major steps or problems, tells how the job is to be done, sets up a practical school plant expansion program, and provides a schedule for the development of the program.

The Virginia Plan in Audio-Visual Education

Prepared by James W. Brown. Paper, 31 pp. Audio-Visual Center, Department of Education, University of Chicago, Chicago, Ill.

The Virginia legislature, in 1945, appropriated $1,112,530 for the purchase of audio-visual teaching aids and equipment for use in the public schools of the state. The present booklet tells how the visual-education program in the state has developed since 1940, how the money has been spent, and how the program is organized and what it has accomplished.

Planning Facilities for Athletics, Recreation, and Physical and Health Education

Paper, quarto. 127 pp., $1.50. Published by the Athletic Institute, Chicago 4, Ill.

The present study, undertaken at the request of a group of manufacturers of athletic equipment and prepared by a committee representing more than a dozen national organizations interested in recreation, physical education, and planning, treats of the functional planning of outdoor spaces and buildings and indoor facilities for the broad group of activities embraced in the above title. As the basis of the study, the first chapter suggests principles of community and regional planning and outlines the need for individual betterment and community improvement through recreation. Subsequent chapters outline ideal requirements for (1) athletic recreation and outdoor play spaces, (2) indoor physical instruction and recreation facilities, (3) health services and health education rooms, (4) supervisory and administrative facilities, (5) special recreational structures, (6) outdoor and indoor swimming pools, (7) stadia and field houses. A final chapter summarizes present ideas concerning lighting, heating and ventilation, sanitary equipment, and interior finishes.

The study is written from a strongly professional standpoint and urges great increases in all types of facilities. Many of its recommendations are magnificently ideal rather than economic or practical from the standpoint of the tax abilities and the democratically felt needs of any one community. Every type of public board — school, park, recreation, or social welfare — will find its fondest hopes for expansion represented by well-considered recommendations for rounding out programs for health and physical welfare. The recommendations for the areas and space requirements for both outdoor and indoor facilities, for the amount and character of equipment, are specific and sufficiently detailed so that the planner may always work with a clear understanding of the current thought on recreation and physical education and the assurance that the facilities recommended will meet good technical standards. The report is a necessary desk tool for school administrators.

Purchasing

By Stuart F. Heinritz. Cloth, 671 pp., 5¼ by 8¼ in., illus., $4. Prentice-Hall, Inc., New York, N. Y.

The contents of this book presents material originally used by the author in a course on purchasing at Columbia University School of Business or gathered from experiences gained while acting as consulting member of the educational committee of the National Association of Purchasing Agents, and as editor of the *Purchasing Magazine*.

The book is divided into five parts, the first of which is devoted to information on "Organization for Purchasing," Part II on "Purchasing Principles," Part III, "Purchasing Procedures," Part IV, "Tools of Purchasing," and Part V, "Purchasing Policies."

Home Mechanics

By William H. Johnston and L. V. Newkirk. Cloth, 302 pp., $3.20. The Macmillan Co., New York, N. Y.

Practical information on the construction and operation of the endless number of devices and utilities in the modern home. Maintenance and repair jobs are described.

The Neighborhood Unit Plan: Its Spread and Acceptance

Compiled by James Dahir. Paper, 91 pp., $1. Russell Sage Foundation, New York, N. Y.

Within the span of a generation amazement and pride over the rapid growth of American cities have given way to startled recognition that unplanned or poorly planned expansion has resulted in physical and social disorganization which today threatens the existence of the cities themselves. This study is based on the significant literature on the subject and aims to present a rough measurement of the extent to which urban planning has been accepted since Clarence A. Perry's statement less than two decades ago. The study begins with the growth and decay of cities, traces the background of the neighborhood unit

(Concluded on page 64)

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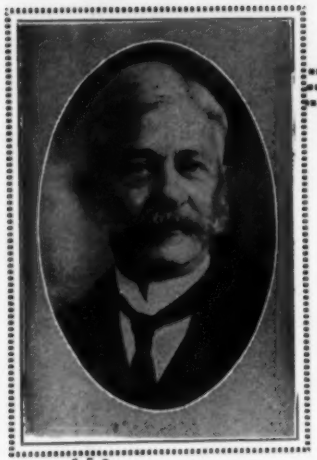

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plan, points to new patterns for cities, with a human scale in planning and more naturalness in living, discusses community planning and its problems, describes American plans and projects in the largest cities, and touches on planning units abroad. A useful list of reading references is appended to each chapter.

Precision Shop Mathematics

By William H. Edwards. Cloth, vi–314 pp., $2.48. D. C. Heath & Co., Boston, Mass.

Modern industry and the trades which compose the effective production departments have use for special applications of mathematical principles and computational skills growing out of mass production methods, the use of precision instruments, and a variety of machines. The present book is planned to familiarize trade and pre-engineering students with the arithmetic used in the precision machine shop, shop formulas, shop geometry and trigonometry, tapers, screw threads, and standard gears. The work has grown out of practical shop conditions and rightfully assumes that correct computations are essential to the successful mechanic and draftsman as any manual skill.

What Next?

By A. S. Artley and Lillian Gray. Cloth, 127 pp., $1.08. Scott, Foresman & Co., Chicago, Ill.

This second-grade book of the "Reading for Independence Series" includes 15 lively stories into which 450 new words are woven. A complete guide will help teachers develop in children the ability to effectively learn new words from the contexts.

Workbooks in Arithmetic

By John R. Clark and Caroline Hatton Clark. Paper, 144 pp. World Book Co., Yonkers-on-Hudson, N. Y.

The four workbooks in this series are planned to supplement any standard text.

Commodity Specifications

Prepared by P. A. Cooley. Cloth, $2.25. Superintendent of Documents, Government Printing Office, Washington 25, D. C.

This is the latest supplement, 1945 edition, of the National Directory of Commodity Specifications, issued by the National Bureau of Standards.

Salaries of Administrative and Supervisory Officers

Paper, 14 pp. Research Division, N.E.A., Washington 6, D. C.

This tabulation is limited to salaries paid administrative and supervisory officers in 84 cities over 100,000 population. The list includes assistant superintendents, business managers, chief attendance officers, directors, head custodians, secretaries, superintendents of buildings, and superintendents of schools. No medians are given.

Practical Parliamentary Procedure

By Rose Marie Cruzan. Cloth, 202 pp., $2.50. McKnight & McKnight, Bloomington, Ill.

Three features of this manual will appeal to users. (1) In addition to detailed explanations of the several types of motions, a complete chart lists the rank and the eight parliamentary limitations of motions. (2) The general recommendations for the organization of a club or group and for the conduct of its business are especially applicable to present situations and to the needs of beginners. (3) The author seeks simplicity and directness of action but insists that informality shall not take the place of order. The book should find a permanent place among the desk references of school boards and their executives.

Teacher Tenure: Analysis and Appraisal

Paper, 71 pp., 25 cents. Bulletin for October, 1947. Published by the National Education Association, Washington 6, D. C.

A report on teacher tenure, prepared by the Committee on Tenure and Academic Freedom, which indicates the prevailing tendencies in teacher tenure in the school systems of the several states and the legislative provisions for teacher tenure. It takes up teachers' contract laws, the status of state provisions for tenure, coverage of tenure laws, tenure provisions, and includes a state-by-state abstract of tenure laws.

Changes in Teachers' Salary Schedules

Paper, 13 pp., $1. The New England School Development Council, Cambridge 38, Mass.

A statement of policies regarding sick leave, death in family and substitute teachers. The report includes a series of salary schedules of the preparational type, and salary policies covering sick leave and absences of teachers.

Statistical Summary of Education, 1943–44

Chapter I, Biennial Survey of Education for 1942–44. Compiled by David T. Blose. Paper, 40 pp., 15 cents. U. S. Office of Education, Washington 25, D. C.

This chapter of the Biennial Survey of Education is a summary covering public and private education from kindergarten through the university. It gives information as to the number of schools, enrollment, number of instructional personnel, financial support, amount and purposes of expenditures, number of graduates, and holding power of the various levels of the schools. The report shows that the grand total enrollment in all schools was 27,219,663, with 19,891,631 in elementary schools, and 6,030,617 in secondary schools. The number of children of school age during the period covered was 2,151,917, which is expected to rise to 2,643,125 in 1948, and to 2,922,850 in 1952. During the period 1942 to 1944 there were 121,127,751 persons 5 years and older, and the Bureau of the Census reported 119,598,173 of this population. The number of students completing the eighth grade or more was 71,060,549, and of these, 25,368,324 had completed four years of high school or more, and 3,800,872 had completed four years of college.

The Words We Use

By I. H. Young. Books one, two, three, and four. Paper, 70 pp., 40 cents. D. C. Heath & Co., Boston 16, Mass.

This useful series of four workbooks is intended to take the slack out of the spelling taught in the grades and to provide four complete years of work in spelling, the usual vocabulary which a high school student must possess for his daily living and writing. A method which has been used successfully in the various classes involves writing of words for correct syllabication, a study of definitions, the use of each word in a sentence, the writing of sentences including each of the words, and a plan for restudying all words misspelled. In addition to thirty assignments, each of the books includes basic spelling rules, rules for capitalization, abbreviations and suffixes, and periodic review tests. In classes of stenography and business English, the course here presented should eliminate practically all criticism of new employees by businessmen.

A Guide to Supervision in the Elementary School

By Edwin Hewett Reeder. Paper, 70 pp. Bulletin No. 60, 1947, of the University of Illinois, Urbana, Ill.

The development of an adequate supervisory program in the elementary schools is a problem which has called for increasing attention during the past few years. This brochure emphasizes the problem and describes a number of ways of dealing with it. The report which is divided into five sections, begins with a study of the development of the function of supervision, explains the current concepts of the nature of supervision, describes the techniques of group supervision, and points to the encouraging aspect of supervision in the future. Only when all school systems have accepted and put into practice the accepted ideals of supervision can the schools make the progress they should. The author believes that the point of attack for improvement is in the elevation of standards in the office of the supervisor-principal. A brief bibliography is appended for reference purposes.

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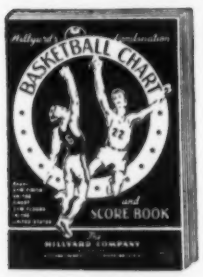

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School Law

Private Schools

A provision of the New York Education Law prohibiting the operation of a private trade school for the purpose of teaching any trade, industrial occupation, or "personal service occupation" without a license being penal, should not be amplified by judicial construction to include nursing, where there was nothing in the legislative record or in the memoranda filed by the sponsors of the ammendment to indicate any intent to include a school of nursing within the statute. N. Y. Education Law, § 66a. — *People* v. *Newman,* 72 N.Y.S. 2d 626, N.Y. Co. Ct.

School Lands and Funds

The public school system of the commonwealth is statutory, and there reposes in the court no power to permit deviations from legislative commands, and neither a local school district nor a state department of education may bypass the duties enjoined. — Petition of Auditors of Hatfield Tp. School Dist., 54 Atlantic reporter 2d 833, Pa. Super.

Schools and School Districts

Where a consolidated school district is organized, the officers of common school districts absorbed by a consolidated district must turn over to the consolidated district all property, money, books, and papers of their respective districts. Mo. R.S.A., § 10498. — *State ex rel. Smith* v. *Gardner,* 204 Southwestern reporter 2d 319 Mo. App.

School District Government

A state board of education in Wyoming had no right to delegate to the state director of vocational education the right to decide whether to continue vocational training of prisoners of war under the regular trade and industrial program, after the termination of federal war production training. Act of Congress of June 8, 1936, § 6a, 49 Stat. 1490; Wyo. statutes of 1945, §§67–104, 67–113. — *State ex rel. R.R. Crow & Co.* v. *Copenhaver,* 184 Pacific reporter 2d 594, Wyo.

Under the Texas statutes pertaining to common school districts the trustees are the representatives of the districts for the transaction of business, may contract for the erection of suitable buildings and equipment, may hold title to all property acquired by the district in trust, and may have exclusive management and control of property. Vernon's annotated civil statutes, arts. 2748, 2752, 2754, 2756. — *Dickenson* v. *Board of Trustees of Chico Independent School Dist.,* 204 Southwestern reporter 2d 418, Tex. Civ. App.

School District Property

The trustees of a Texas common school district, having the right to move improvements on land to another part of the district for use for school purposes, such improvements did not become a part of the realty, so that upon a decision of the trustees to abandon the land to the reversioner, the trustees had a right to remove or wreck and salvage the improvements. Vernon's annotated civil statutes, arts. 2748, 2752, 2754, 2755, 2756. — *Dickenson* v. *Board of Trustees of Chico Independent School Dist.,* 204 Southwestern reporter 2d 418 Tex. Civ. App.

School District Taxation

A Montana school district which lay entirely within a high school district could issue bonds for the full 3 per cent of the valuation of its taxable property without violating a constitutional provision limiting the indebtedness of a school district to 3 per cent of the value of the taxable property therein, though the high school district had an outstanding bonded indebtedness of $99,000, since the indebtedness of the high school district was not to be considered in determining the school district's debt limitation. Mont. constitution, art. 13 § 6. — *House* v. *School Dist. No. 4 of Park County,* 184 Pacific reporter 2d 285, Mont.

Where moneys or properties are derived directly or indirectly through the use of school buildings, or from the expenditure of public funds of a school district, the moneys thus derived are public property and must be handled the same as tax moneys and be paid to the district treasurer and are subject to public audit. 24 P.S. § 2201. — Petition of Auditors of Hatfield Tp. School Dist., 54 Atlantic reporter 2d 833, Pa. Super.

A board of education is not entitled to levy and collect taxes on the basis of an estimated budget not made in the manner required by the Illinois statute. Ill. revised statutes of 1941, c. 122, §§ 152–153a, 157, 158. — *People ex rel. Schlaeger* v. *W. J. Dennis & Co.,* 74 Northeastern reporter 2d 542, Ill.

The trustees of a Texas common school district have no right to use tax money or proceeds of the sale of bonds for any purpose other than that for which the tax was levied and collected or the bonds sold, and they may not even bear the expense, from those funds, of teaching pupils residing in another district. — *Dickenson* v. *Board of Trustees of Chico Independent School Dist.,* 204 Southwestern reporter 2d 418, Tex. Civ. App.

Teachers

Under a Missouri statute authorizing the board of education of St. Louis, on a recommendation of the superintendent, to transfer a teacher from one position to another, a teacher's tenure did not vest him with an absolute right to continue in the position of a Class A principal in the public schools of the city, at a salary of $5,000 per annum, and the board could transfer a teacher who had reached the age of 70 years to the rank of limited service at a salary of $1,000 per annum. Mo. R.S.A. § 10730. — *Gartenbach* v. *Board of Education of City of St. Louis,* 204 Southwestern reporter 2d 273, Mo.

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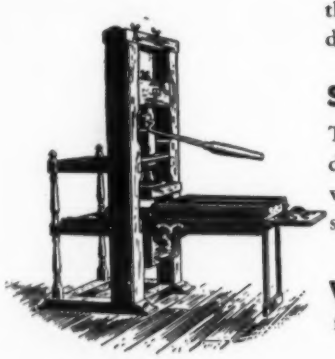

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LOCATING SCHOOLS IN PUBLIC PARKS

The advisability of locating a public school building in or adjoining public parks was strongly advocated by John McFadzean, recreational consultant, Winnetka, Ill., before the annual conference of public and private school administrators at the University of Chicago.

The unrelated planning between public agencies in communities has led to many unmet needs, poor economy, and costly duplications. According to McFadzean, the proximate location of children's playgrounds, neighborhood parks, play fields, and school buildings avoids considerable duplication. The all-season paved playground area surrounding school buildings can be so designed as to provide tennis courts and other game areas for community recreation; properly arranged, school play fields can be adapted for twilight or night baseball; outside classrooms can be used for family picnics and other gatherings. The problem of cost can be met by an arrangement under which the school board pays for indoor facilities for health, education, and recreation and the local park board provides outdoor facilities.

Some other benefits of the park-school plan, outlined by McFadzean were:

"1. The school board can have more funds available to spend for its buildings and include facilities for community recreation because of reduced land requirements.

"2. The park board does not need to build field or community houses and can spend its funds on the enlarged ground improvements.

"3. No duplication of maintenance, crews or equipment, thereby reducing annual corporate expenses.

"4. Assessed valuations in the immediate vicinity of a park-school are not affected adversely to the same degree as property values near a school having small schoolyards.

"5. The park-school arrangement does much to focus the center of public interest on a single area and enables the governing boards of the parks, schools, and recreation to present a larger, more attractive, and efficient packaged unit to the community, thereby reducing taxpayer objections to taxes for required facilities and services.

"6. The present trend towards shorter working hours for all people makes it mandatory for communities to provide recreational areas for the leisure-time activities of the citizenry.

"7. Children of high school age benefit by the availability of large areas for active, organized play, and adults are interested in both intensive and quiet use areas for recreation."

THE SUPERVISORY GROUP IN THE HIGH SCHOOL

Overlapping of authority frequently develops in the high school because of misunderstanding of duties or a consciousness of authority over duty. After much study over a period of years, covering the encumbency of many different persons in various supervisory and administrative positions, it has appeared that these misunderstandings have caused an overlapping of authority and a deviation from the intended line of demarcation between administration and supervision.

"Under the direction of Everett W. Ireland, superintendent of the city schools of Somerville, Mass., a supervisory group has been set up in the high school, which is composed of the various heads of departments and the personnel workers. The duties and responsibilities which are on a functional basis, are set forth in accordance with the following definitions:

"1. Administration, having to do with the general control and operation of the entire school system should involve the legal basis upon which the school program operates, the organization of its numerous factors into an effective machine, the officering of its business and instructional staff, the supervision of its activities, and the accounting of its cost and progress.

"2. Supervision is a specialized function devoted to the inspection, analysis, and direction of the improvement of the educational activities of individuals working at one administrative level, and administered by superior officers working at higher levels.

"The high school staff has been reorganized on a functional basis with (1) an administrative staff of three persons, (2) a supervisory staff consisting of the heads of subject departments, personnel workers, building masters, floor masters, and (3) teaching staff.

"The headmaster is the chief administrative officer of the buildings and its organization. The director of administration has charge of the administration of those business, attendance, and disciplinary activities, as well as routine administration of the building; the director of education has charge of the educational activities, including the direction of the curriculum, the courses, and the program of studies. These two directors jointly organize and direct the administration of research and guidance.

"The supervisory staff is responsible, under the administrative and educational directors, for the supervision of the execution of the work in courses of study, and for the responsibilities of the administrative direction.

"The teaching staff is responsible for the direct instruction of the students in the classrooms and must keep such records of scholarship, attendance, and discipline as are required by their superiors.

"The entire plan is intended to provide a more closely knit unit of over-all responsibility and a more effective and efficient supervisory organization, with a resultant improvement in the accomplishments of a well-established, hard-working instructional staff."

► JAMES A. LEWIS, of St. Joseph, Mich., has accepted the superintendency at Dearborn, where he succeeds F. E. Mueller.

► E. C. LONG has accepted the superintendency at Madison, Ill. He was formerly principal of the Harris school.

School Finance and Taxation

GOVERNMENT EXPENDITURES

The Tax Institute, New York City, estimates that the total federal expenditures for education in 1945 amounted to $25,083,000; that the expenditures of the states, including state aid, were $1,201,323; that the cities above 25,000 population expended $463,859,000. Figures for cities under 25,000 population are not available but the latest statistics (1942) represented a total expenditure of $42,696,000.

PHILADELPHIA TAX SITUATION

Two new taxes for Philadelphia's schools have been fixed by the board of education and a school budget of $44,267,544 has been adopted for 1948. The new taxes — a four-mill levy against personal property and a mercantile tax of one mill on retail, and one-half mill on wholesale business — are expected to bring $5,350,000. With this added revenue the school district will be able to meet anticipated expenses, but will not have sufficient funds to wipe out a $2,000,000 deficit incurred in 1947, plus a $271,441 deficit remaining from 1946. The budget allots $700,000 for three new projects — employment of 200 new elementary and special class teachers; purchase of new textbooks worth $240,000; and supplies above this year's allotment of $590,000 and $25,000 for the opening of 20 additional schoolyards as recreation centers next summer. Most of the increased operating expenses, however, are due to salary increases and the rise in maintenance and material costs. The new taxes were authorized for two years by the state legislature, and are in addition to the school board's levy of 11¾ mills on each $100 of assessed real estate valuation.

The budget lists estimated receipts for 1948 from the following sources: real estate tax, $30,892,002; delinquent taxes and penalties, $1,350,000; personal property tax, $2,600,000; mercantile tax, $2,750,000; state appropriation, $6,385,542; and miscellaneous, $290,000. Of the new taxes, officials consider the mercantile the more difficult to collect. The tax is to be applied against the volume of sales in the city for the current year and must be paid by March 15.

According to Add B. Anderson, business manager for the board, there are two problems figuring in the collection of the tax: (1) how to reach the untold thousands of neighborhood corner stores and one-man businesses, of which there are no complete handy records; (2) the expense that may be entailed in a 100 per cent enforcement and collection.

School authorities have been assured by Receiver of Taxes, W. Frank Marshall, that collection costs will be under the 21 per cent which it cost to collect a former state mercantile tax. Officials believe cost of collecting the new levy may be somewhere near 10 per cent. A Mercantile Tax Bureau, with from 30 to 50 employees, is being set up in the board of education building. It is a branch of the Receiver of Taxes office, since it is this office and not the school district which is responsible for collection. About 100,000 applications for the $2 license were mailed out to prospective taxables. Walter Biddle Saul, chairman of the board's business committee, has advocated an addition of one-half per cent to the wage tax, to be used strictly for school purposes. Mr. Saul claims a wage tax of one-half per cent would yield $10,000,000. A one per cent wage tax is now levied for municipal purposes. The proposed tax would have to be authorized by the state legislature. In suggesting the wage tax Mr. Saul said it should replace the four-mill tax on personal property, the one-half mill on wholesale business, and the one mill on retail sales.

FINANCE AND TAXATION

► The joint Senate and House Educational Survey Committee and the Citizens' Advisory Group of the State of Missouri, on November 18, approved legislative proposals to raise educational standards and improve the administration of the state's public school system, including more equitable distribution of state school funds.

The program, developed from a public school survey ordered by the 1947 legislature, is subject to revision after state-wide public hearings. Final recommendations will be drafted for submission to the legislature in January.

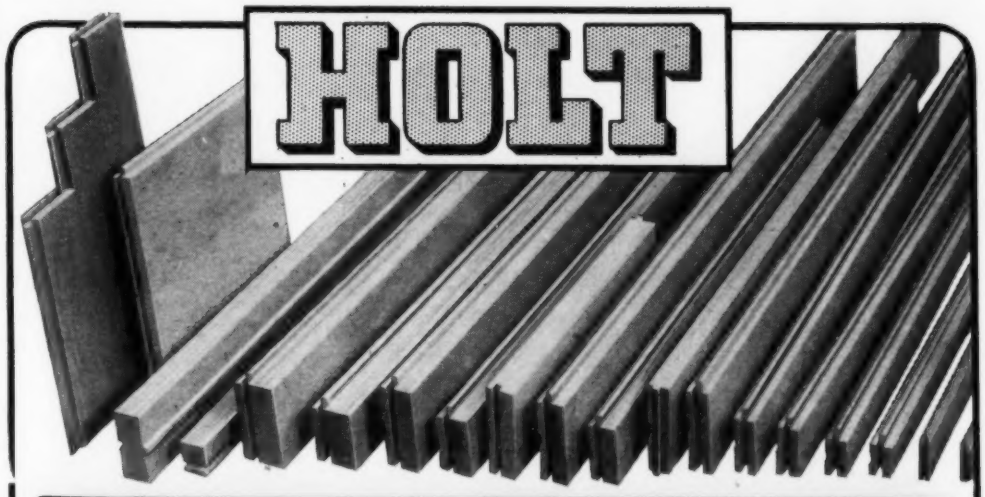
The legislative proposals are intended to provide better educational opportunities in rural schools, higher standards generally, and better administration of the 8558 school districts. A major reform is the revision of the complex statutory formula for the distribution of the state school funds to the districts. The proposal is intended to modify a discrimination against city districts in the 1931 school law, which operates to the advantage of rural districts with low tax rates and reduced valuations.

► State sales and use tax refunds of $2,995 for the first quarter of the 1947–48 fiscal year, ending next September 30, were paid to the school district of Des Moines, Iowa, on December 3. The refunds were on purchases totaling $149,750 and represented the first payment under a new law passed by the 1947 legislature and which became effective July 1.

The first annual appropriation of general school aid, voted for school districts of Iowa by the state legislature, will be distributed shortly, according to State Comptroller Ray Johnson. The amount to be distributed, which amounts to $7,347,650, represents 89 per cent of all claims filed totaling $8,239,732. The amount available for distribution was reduced to $7,347,650 after a deduction of $27,350 for administration expense.

SCHOOL BUSINESS OFFICIALS TO ST. LOUIS

The Association of School Business Officials will hold its 1948 convention at the Jefferson Hotel, St. Louis, Mo. The tentative dates for the meeting are October 10–14.



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School Board Conventions

ILLINOIS SCHOOL BOARDS MEET IN CHICAGO

The 33rd annual conference of the Illinois Association of School Boards and the Illinois Association of School Administrators was held in the Congress Hotel, Chicago, Ill., November 16 to 18. More than a thousand school board members and administrators were in attendance.

Outstanding talks were those on Personnel Relations, How Do You Know You Have a Good School, Trends in School Construction, and Problems of Maintenance and Custodial Service. One of the high lights of the meeting was the address by Roy L. Smith. Earl H. Hanson, Rock Island, participated in a panel discussion on "Merit Rating and Tenure." The members enjoyed a visit to the Crow Island School in Winnetka and to the new schools in Park Ridge.

At the business session new officers were elected as follows: president, E. E. Clark, Naperville; first vice-president, Frank Denny, Vandalia; second vice-president, George Preucil, River Forest. Members of the executive committee are Robert Krebs, B. B. Burgess, Robert Kimball, Mrs. Emma Eckblaw, Earl Beling, and Bert Kohler.

TEXAS SCHOOL BOARDS MEET IN SAN ANTONIO

The State School Boards' Association of Texas held its annual meeting November 28, in San Antonio, with thirty members in attendance.

Dr. A. J. Stoddard, of Philadelphia, Pa., speaking on "Responsibilities of School Boards," called attention to the importance of the practical application of changing concepts of education to the building program. He urged the necessity of reexamining the financial base of public schools and emphasized the possibilities of federal aid without federal control.

At the afternoon session A. L. Woods, state superintendent, discussed the new regulations for raising the standards of instruction. W. L. Kocurek, of Austin, gave an enlightening report on the Austin School Building Program. He called attention to the efforts of the board in the early purchase of school sites and pointed out that this land has increased in value several times that of the purchase price.

It was urged that school boards in the state plan their budgets to include the expenses of selected delegates to the annual meeting of the State Association and to the National Council of School Boards.

At the business session officers were elected for the year 1948 as follows: president, Dr. Ray K. Daily, Houston; first vice-president, W. I. Kocurek, Austin; second vice-president, Mrs. O. E. Latimer, San Antonio; secretary, Mrs. B. F. Coop, Houston.

CONVENTION TOPICS AT A.A.S.A.

Under the general theme of "The Expanding Role of Education," the national convention of the American Association of School Administrators, to be held February 21 to 26, will feature general sessions addressed by nationally known speakers and more than thirty afternoon discussion groups devoted to practical aspects of improving the school program. Among the topics to be taken up at the various sessions are the following: The School Board and the Superintendent of Schools; Planning the School Building Program; The Year-Round School Program; The Superintendent and the Improvement of Instruction; The Superintendent Shares With Teachers in Planning Programs and Policies; The Superintendent and Effective Public Relations; Religious Instruction in the Schools; Relating Teachers' Salaries to Competency; Education for All the Children.

SCHOOL BUILDING EXHIBIT AT ATLANTIC CITY

Sponsored by the 1949 Yearbook Commission on school buildings and equipment, a nationwide exhibit of building plans and models will be featured at the Atlantic City convention of the A.A.S.A., February 21 to 26. John W. Lewis, of Baltimore, Md., has been appointed chairman of the exhibit committee, which is collecting blueprints, sketches, and models from large and small school districts, from nonurban as well as urban communities, and from all sections of the country.

STATE ADMINISTRATORS HOLD MEETING IN ST. LOUIS

Thirty-seven presidents of state associations of school administrators, representing 33 states, met at the call of President Herold C. Hunt, in St. Louis. The purpose of the meeting was to implement the number one recommendation of the planning committee between state and regional groups and the A.A.S.A. The members discussed ways of making more competent the leadership of the superintendent. Five committees, comprising the entire membership were appointed, and their reports were adopted for presentation to the A.A.S.A. executive committee.

COMING CONVENTIONS

Jan. 5–6. National Commission on Teacher Education and Professional Standards of the N.E.A., at Indianapolis, Ind.

Jan. 9–10. National Commission on Teacher Education and Professional Standards of the N.E.A., at Boston, Mass.

Feb. 15–18. Association for Supervision and Curriculum Development, at Cincinnati, Ohio.

Feb. 20–21. National Association of Business Training Institutes, at Atlantic City, N. J. Mrs. Margaret H. Ely, president, Pittsburgh 13, Pa.

Feb. 20–21. Michigan Association of Health, Physical Education, and Recreation, at Grand Rapids. Frank Whitam, Grand Rapids.

Feb. 21–25. National Association of Secondary School Principals, at Atlantic City, N. J.

Feb. 21–26. American Association of School Administrators, at Atlantic City, N. J. Willard Givens, secretary, Washington, D. C.

► HERBERT S. MITCHELL, of Dearborn, Mich., has accepted the position of business manager for the board of education at San Bernardino, Calif. He will assume his duties February 1.

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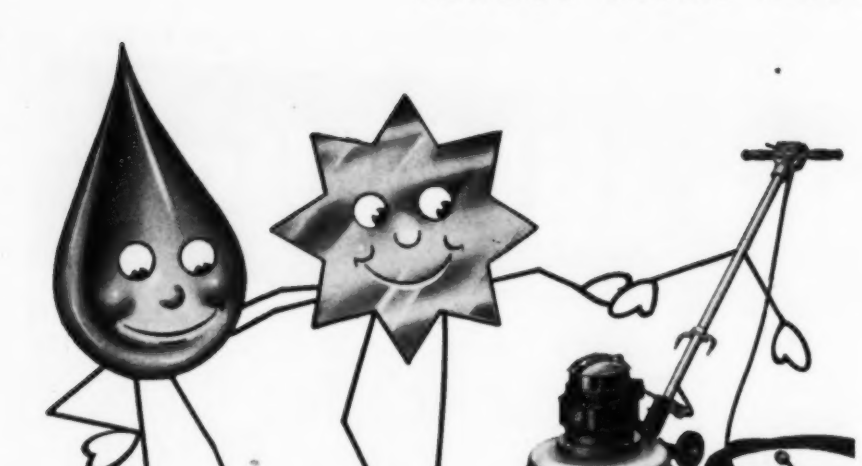

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School Board News

MAKING THE COMMUNITY AWARE OF THE SCHOOL PROGRAM

The board of education of Dist. 108, Highland Park, Ill., has been faced with a number of major problems, including the adoption of a higher tax rate, an expanded school budget due to salaries and other costs, the planning of a building program, and the development of a new salary schedule. Most of these problems had been under consideration for some time. The higher tax rate and the new salary schedule are at present in operation.

Supt. Lester B. Ball reports that, in order to bring the community up to date, a booklet was published in September, 1947, entitled, "These Are Your Schools." The booklet, which was sent to all residents of the community, attempted to give parents an overview of the problems up for consideration.

Following the distribution of the booklet, the board made arrangements to report to each of the parent-teacher associations at a regular meeting. At these meetings the entire board was in attendance, and a panel of board members presented orally the major problems and considerations confronting the board. Time was allowed for statements from parents in attendance.

The board had two major purposes in its program. First, it aimed to keep the community fully informed of its actions, and second, it sought to get the reactions of the community to steps already taken, and their ideas for future steps. At present the board is completing plans for a building program and is seeking the reaction of the community to these plans.

As a result of the meetings and the booklet, the board is now in a better position to take its next steps because it is assured that the community understands what the board is undertaking. It is the opinion of the board members that no school can be strong unless the community is continuously aware of the program of the school.

SCHOOL NEEDS FOR BATTLE CREEK

Virgil M. Rogers, superintendent of schools of Battle Creek, Mich., has presented to the board an outline of recognized educational needs for the city schools, which he hopes will be fulfilled in the not too distant future. The list which contains ten definite activities is largely directed toward the improvement of the general school program and the extension and renovation of the school plant.

1. To extend and develop closer school community understandings to permit the schools to be more adequately financed.
2. To promote more effective citizenship education to insure a general lifting of the level of civic pride and responsibility in the community.
3. To develop a deep understanding and appreciation of American democracy in the students so that they may become a bulwark of strength in the national society.
4. To encourage educational planning which will strengthen the family unit and inculcate high ideals in the children.
5. To give further study to the proposal for adding grades 13 and 14 to the high school.
6. To continue the program of improvement of instruction to meet the educational needs of all boys and girls.
7. To continue the in-service teaching program in order to bring a fresh and up-to-date approach in dealing with school problems.
8. To extend co-operation in educational planning to the schools and communities so that all may profit from such planning.
9. To arrange and carry out a program of building repair and improvement to assure a safe, comfortable, and healthful environment for students.
10. To further develop the program of the Educational Planning Committee and the Educational Advisory Committee to produce wider parent sharing in the improvement of the city schools.

PERSONAL NEWS

► HARRY D. SIMMONS, of Stillwater, Okla., has accepted the superintendency at Muskogee.

► HAROLD W. WRIGHT has succeeded Alva T. Stanforth as superintendent of schools at Floral Park, N. Y.

► J. W. MOORE is superintendent of schools at Winston-Salem, N. C.

► SUPT. MERLE J. ABBETT, of Fort Wayne, Ind., has been re-elected for a four-year term, with an increase of $500 in salary.

► WILLIAM A. HACKER, assistant superintendent of the schools of Indianapolis, Ind., died on December 11, at the age of 65. He had been a member of the Indianapolis school system since 1912 and had completed 35 years' service as teacher, principal, and assistant superintendent.

► RUDOLPH LOFGREN has been employed as assistant superintendent in charge of the school plant at Quincy, Mass. He holds a degree in engineering from Northwestern University, and has had broad experience as a building contractor and as a naval officer in charge of maintenance during the war.

Rudolph Lofgren

► The Philadelphia board of education has re-elected DR. ALEXANDER J. STODDARD, public schools superintendent, for another six-year term and raised his salary 5 per cent to $18,690. The board also gave a five per cent increase to business manager Add B. Anderson, who now receives $15,750 a year.

► EARL LANG has been elected president of the school board at Audubon, Iowa.

ANTICIPATORY SCHOOL SITE SELECTION AND PURCHASE

(Concluded from page 34)

Anticipatory site selection has been made in a number of instances in various parts of the city. The most extensive program has been carried on in the Borough of Queens, where the greatest impact of new residential housing is felt. Sites for future schools have also been selected in the Riverdale section of the Bronx, where there is promise of much early building activity. The proposed schools involved are:

SCHOOLS FOR WHICH ANTICIPATORY SITE SELECTIONS HAVE BEEN MADE

School	*Location*
177 Queens	Kew Gardens — Jamaica
178 Queens	Kew Gardens — Jamaica
46 Queens	East of Cunningham Park
175 Queens	Forest Hills
172 Queens (JHS)	Northeast Queens—Queens Village
24 Bronx	Riverdale
East Queens High School	Northeast Queens

REPORTS IN PREPARATION FOR ADDITIONAL ANTICIPATORY SITE SELECTIONS

School	*Location*
Six Year High School	Riverdale
P.S. 109 Bronx	Sedgwick Village
P.S. 47 Queens	Broad Channel

Formulation of School Site Needs

Various types of studies are in constant progress in the Division of Housing to assist in the formulation of the school site program. They include borough-wide studies of population showing trends, regional studies showing residential saturation and potentialities, and neighborhood studies concerned with a limited area in which acute schoolhousing problems have arisen.

In November, 1946, there was completed a borough-wide study of the population showing, in general, anticipated school building needs of the Bronx. It considers population with reference to the accommodations of all existing schoolhousing. The task has been undertaken of indicating possible trends in population throughout the various subdivisions of the Borough. Existing school buildings are analyzed and proposals for new school buildings are made.

In the population analyses, health areas were used as a basis for the subdivision of population. Health areas are utilized because they are the only subdivisions of a Borough for which population facts are uniformly available.

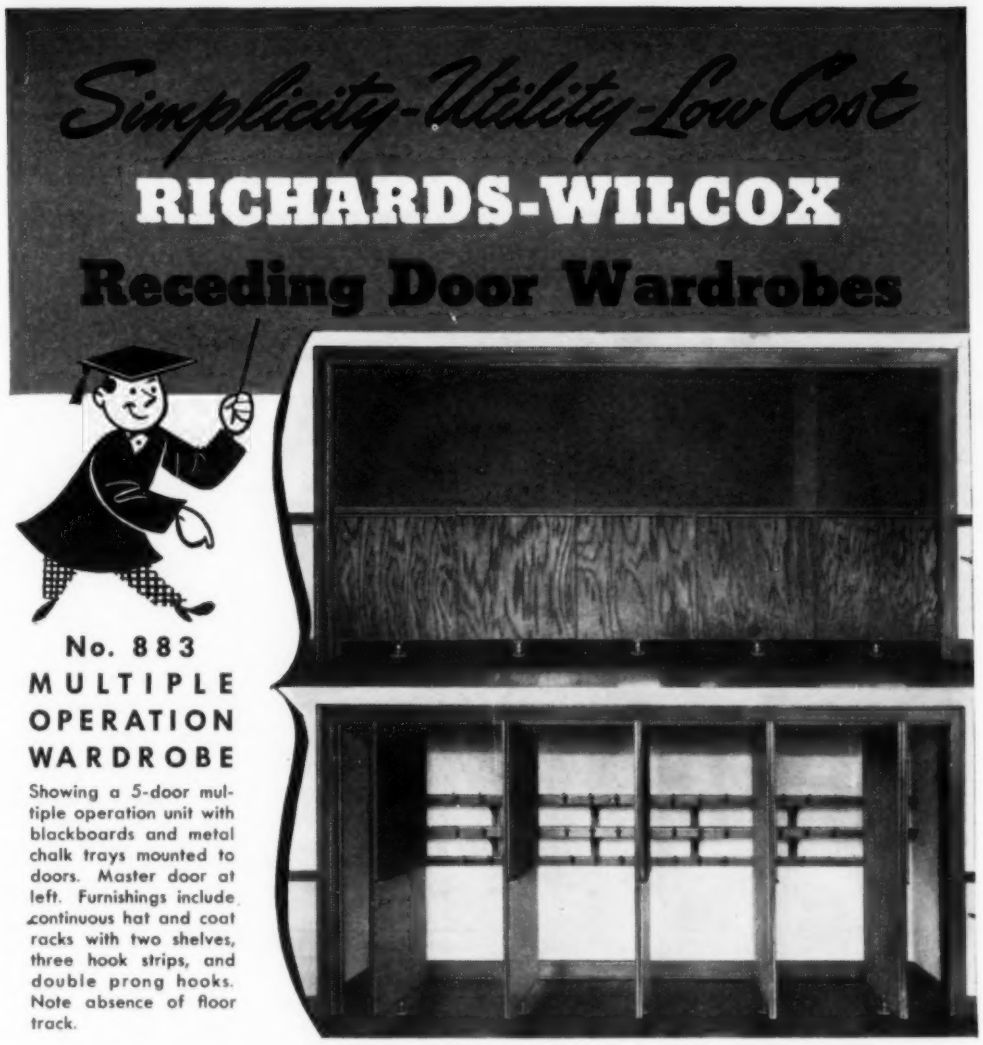
It is hoped that similar studies may be made of each one of the Boroughs. Such a document as this will be used as a constant source of reference by the planning groups in the board of education. It also promises to be helpful to other city departments.

A detailed regional study has been made of the area in Queens comprising all the borough north of the main line of the Long Island Railroad from Flushing Bay on the west to the city line. The area consists of some 17,157 acres with a population of 264,843. It was presumed that in a foreseeable period this area will have a 75 per cent housing development and will have a population of 545,310 with an average density of 31.8 persons per acre as against a present average density of 15.4 persons per acre.

The number of children to be expected has been calculated and on the general basis of 1200 pupils for an elementary school and 1500 pupils for a junior high school ideal districts have been plotted. In general these schools will require a population of 16,500 to support an elementary school and 44,000 to support a junior high school. The shape and the area of these districts have been modified by local conditions of topography, traffic arteries, and similar factors. Fifty elementary districts and 13 junior high school districts have resulted.

When the districts were determined, future population centers were found. Each district was studied with regard to existing schools and schools were projected in the near future. Where these provisions were found not to meet the estimated need arising out of this study, an addition or a new building is proposed. In other cases building of a junior high school, none of which exists in the area at this time, will meet the need.

It should be noted that in most cases no new buildings beyond those already in the building program will be required at an early



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Showing a 5-door multiple operation unit with blackboards and metal chalk trays mounted to doors. Master door at left. Furnishings include continuous hat and coat racks with two shelves, three hook strips, and double prong hooks. Note absence of floor track.

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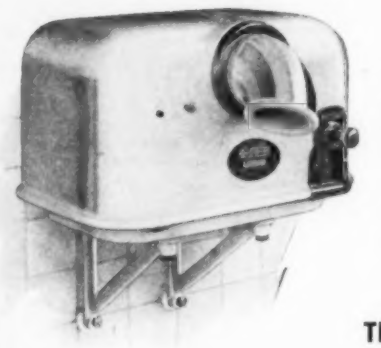

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date. The important implication of the study is that sites should be reserved at once before the development occurs. In this way only may New York City be assured of sites that are suitable for school buildings, properly located and procurable at the minimum cost because unimproved.

Map No. 1 shows existing elementary schools in this northeastern area as well as the proposed new schools required to satisfy all future needs. Map No. 2 shows the proposed junior high school districts and the approximate location of future high school buildings. In these studies it is shown that 14 new elementary school sites and 13 new junior high school sites should be selected within a short period of time.

Neighborhood Studies

In determining the need for new schools, their location, the size of the building and the facilities to be included therein, the Division of Housing studies specific limited areas of the city. Modern city planning puts an emphasis on neighborhood development. In New York City, to a given degree these neighborhoods may be found and their boundaries defined.

In such a study, census reports are utilized, ascertaining the character of housing, the educational and economic status of the people. The distribution of child population by age with a determination of trends is considered so as to forecast future school population. Proposals for new housing enter into the picture. The monthly reports of the schools are studied and compared with past years.

The ages and the facilities of the school buildings are important factors in determining the school needs as discovered from the above. As a result of such study, recommendations both immediate and long range have been made for 15 of New York City's neighborhoods.

SCHOOL PROGRESS IN HOUSTON

Although the Houston, Tex., board of education holds long sessions several times weekly, the members have been unable to keep up with the many demands on them.

Because the bylaws of the Parent-Teacher Association prohibit discussion of educational problems with the board, parents who recently started a fight on the curriculum program have formed an organization which they have named the Houston Parent Education Association, with duly elected officers from various sections of the city. The organization has as its object to provide an organized voice for the city's parents in the problems of children's education, and the "procuring in Houston schools a more thorough study and learning of what educators call the basic subjects." Their main pledge is to "stay out of any kind of politics," and confine their activities strictly to the encouragement of a return to the fundamental "three R's." They are calling for less emphasis on physical education and more on basic subjects.

The newly organized group will act as a go-between for the Parent Teacher Association and the board of education.

The board is studying the legality of using some of the public school funds for night classes for adults. Previously the night adult classes have been self-supporting through tuition payments of their more than 400 students. But a recent survey on adult programs in other cities compared with Houston showed: (1) Adult enrollment is lower in Houston than in most other cities. (2) Teacher pay for adult classes is as low or lower in Houston than in other cities (Houston teachers get $1.50 an hour while those in San Antonio, Tex., receive $2 to $4 per hour). (3) There are bigger enrollments where there are better paid teachers. (4) Teachers are better paid where the night schools for adults are not dependent entirely upon tuition for support.

The board is taking applications for a school doctor. Dr. A. C. Hutcheson, who has been serving part time for the past few years, has tendered his resignation effective January 27, 1948. The public school health department now includes some 30 nurses, one supervisor of nurses, a dental hygienist, and Dr. Hutcheson.

A recent appeal from the County Spastic Circle for more room for spastic children met with the promise that if the present facilities are not adequate, more will be provided, and any needed improvements made.

Supt. W. E. Moreland has been instructed by the board to have all soft drink machines removed from public school buildings because children are spending their nickels for soft drinks when they should be spending them for milk.

A plan is being worked out by the board to purchase a $1,775,000 former war plant for $30,000 to be converted into a high school in a section of the city where one is badly needed. Although the location is an industrial area, residents of the section favor the plan. It would give them a building for more than two thousand junior and senior high students, it would save thousands of miles of travel and weeks of time each year — and it would save a lot of money for the school board. If successful in the plan the board stated they would be establishing a precedent in wartime property purchase.

► Baxter Springs, Kans. The school board has authorized Supt. P. G. Chrisman to begin plans for a revised sick leave policy for the city schools.

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NEW YORK CITY SCHOOL NEEDS

The *Mort Report*, issued by the New York Public Education Association on December 9, indicates the New York City school needs in the way of additional teachers, classes, and equipment to give its children the educational advantages enjoyed by other communities of comparative wealth. The grand total for these proposed expenditures will reach $94,337,000. The staffing needs alone, including teachers, dental hygienists, nurses, physicians, and libraries will cost $31,497,000; the building and equipment needs, $23,100,000; the supply needs, $4,500,000; the administrative needs, $23,780,000; and plant operation, $9,060,000.

INDIANA TOWN AND CITY SUPERINTENDENTS HOLD MEETING

The eighth annual meeting of the Indiana Town and City School Administrators was held December 4, in Indianapolis. John V. Beamer, of Wabash, presided.

Hon. Ben H. Watt, state superintendent of instruction, opened the meeting with a talk on "The Future of Education in Indiana." Hon. Hobart Creighton, who followed, discussed "The State's Responsibility for Education."

In the round-table discussions, a number of speakers took up such problems as Trends in Birth Rates and Effect on Enrollment, Recreation Under the School City, Maintaining an Efficient School System.

ENLARGING THE LARNED SCHOOL DISTRICT

The school administration of Larned, Kans., is carrying on a campaign for the enlargement of the school district. The purpose is to expand the services of the school and to make the broadened program available to the children of the adjacent rural districts. At the same time, it is hoped that the annexation of farm land will raise the total valuation of the combined district and make possible the issuance of bonds for a needed modern school plant.

The decision of the Kansas State Supreme Court declaring the 1947 school district reorganization law unconstitutional has stopped the projected program of rural district reorganization and leaves open only voluntary planning of annexations. The direct help which is available arises out of the fact that elementary and high school tax levies are county-wide and rural districts cannot make low local levies.

Early in the fall, Supt. Jess O. Cullison, at the request of the school board, sent letters to the adjoining rural districts, explaining the legal method of annexation and showing the advantages to the children. One district has now been annexed and a second is taking steps for similar action. It is expected that the thinking of the rural people will change to strongly improve the entire situation of valuation and school plant.

SUBURBAN MERGERS URGED

School administrators in Philadelphia, Pa., are urging a merger of small suburban school districts as a means of meeting the deluge of pupils headed their way. The last legislature provided for the merger of such districts. Plans are to be submitted before July 1 by each county superintendent to the State Council of Education and, if approved, the merger may be submitted to the voters of the county.

If, in merging school districts, there is found need for new schools, easy means of obtaining funds has been supplied in Act 498, according to Thomas Francis, superintendent of Lackawanna County Schools. He said: "It seems that with this enabling legislation, those of us who represent suburban districts will be able to take care of the influx of school population from now on through the 1950's when, unless unforeseen conditions arise, we shall have a leveling off in school population. The rapid increase of births should give us a bulge in school enrollments which should reach its peak in about 1950 or 1952." Superintendent Francis is hopeful that, with the revised curriculum for both elementary and secondary schools now under way in Pennsylvania, suburban schools will become more attractive than city schools.

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RIVERSIDE CONVERTS ARMY BUILDINGS INTO SCHOOL HOUSING

(Concluded from page 43)

(a cost of about $1,000). The remainder of the hospital unit was sold by the War Assets Administration to the Federal Public Housing Authority.

Immediately after the final acquisition of the buildings, the board of education appointed the firm of Heitschmidt and Matcham, architects, to propose the ultimate design of each unit. A house mover was employed and the building plan got under way. Two entirely new schools and additions to four schools already established were proposed and accepted as the best plan of utilization.

If ever any surplus army buildings were suitable for schoolroom use, these were. The ward rooms measure 26 by 150 feet; the framework of the buildings was bolted together instead of being nailed; the exteriors were of channel siding over gypsum board and the interiors were of celotex; there was ample fire protection of the overhead sprinkling type; artificial illumination was not adequate, but the fenestration was more than sufficient; the flooring was of asphalt tile laid over plywood; there was more than ample plumbing — though not in the right places.

Despite all these advantages, it soon became apparent that unless every possible saving was made, the cost of turning these units into classrooms might become prohibitive. Here is how the school district stands thus far:

Cost of acquisition from WAA	$ 1,000
Cost of moving buildings	13,000
Cost of foundations	11,000
Estimated cost of alterations	75,000

There will be, of course, the additional expenses of equipping the schools, connecting utilities, and all those incidentals that inevitably develop. But Riverside will have at least 30 additional classrooms, an auditorium, and a steam heating plant for a total cost of under $150,000 or a cost of less than $5,000 per classroom.

With a building program of much wider range in its formative stages, Riverside should be able to weather the rising tide of enrollment for many years to come.

PANIC IN PLACES OF ASSEMBLY

(Concluded from page 40)

The answer to the question of preventing panic therefore may be, provide security of mind, which means make it visible to the eye or repeat it in print or otherwise until it is a subconscious reality, that the place is kept free of quick burning material; that adequate well-marked exits exist, and last but not least, that these exits are usable.

NOMINEES FOR A.A.S.A. PRESIDENT

Eight hundred and seventy-five members of the American Association of School Administrators voted in December for 484 different persons for president for 1948–49 in a primary mail ballot. The nominees for the office are John L. Bracken, Clayton, Mo.; Hobart M. Corning of Washington, D. C.; Claude V. Courter of Cincinnati, Ohio; Willard E. Goslin of Minneapolis, Minn.; and Alfred D. Simpson of Cambridge, Mass.

DR. PAUL MONROE DEAD

Dr. Paul Monroe, 79, professor-emeritus of education at Teachers College, New York, died at his home in Garrison, N. Y., on December 6.

A native of Indiana, Dr. Monroe was graduated from Franklin College and earned his doctorate at the University of Chicago. He became a member of the Teachers College faculty in 1897 and was director of the School of Education from 1915 to 1923. From 1932 to 1935 he was on leave to act as president of Robert College and Istanbul Women's College in Turkey. From 1925 to 1935 when he retired from Teachers College, he held the title of Barnard Professor of Education. His great work was as editor of the *Encyclopedia of Education* (1910–13) and as promoter of international educational projects between the United States and China and the Near East.

NICHOLAS M. BUTLER DIES

Nicholas Murray Butler, former president of Columbia University, New York City, died December 6, at the age of 85.

Dr. Butler held numerous scholastic degrees and honors and was connected with a great number of educational organizations and institutions. His most important work was the first presidency of Teachers College (1886–91) and the presidency of Columbia University (1901–45). Since his retirement two years ago he acted as president-emeritus of the University.

In teaching circles Dr. Butler will be long remembered as a conservative, who wielded great influence for the improvement particularly of college entrance and of academic instruction in universities. He was president of the N.E.A. in 1896 and was organizer and editor of *The Educational Review* (1889–1920). He was several times mentioned as a Republican candidate for the Presidency and took an active part in developing Republican platforms during the 1920's. In late years his outspoken conservative stand on education aroused considerable resentment among the progressive education groups.

PERSONAL NEWS OF SUPERINTENDENTS

► HOWARD R. CROMWELL has accepted the superintendency at Glendale, Ohio.

► NELSON N. STORK, of Hoopeston, Ill., has succeeded W. J. Colahan as superintendent of schools at Woodstock.

INFORMATION FOR A SCHOOL BUILDING SURVEY

(Concluded from page 28)

tables we determined that under our legal tax limitation restrictions as set up by New Jersey law, we would be able to bond the district for as much as $1,585,000 of new bonds by June 30, 1947. Finally, in order to give the community some comparative data on tax rates and valuations we set up a table showing rates and assessed valuations for the 31 communities in the county with more than $15,000,000 of assessments. All of the information on taxation was easily available at the office of the county assessor.

The Ridgewood survey, when completed, contained 100 mimeographed pages of narrative, charts, graphs, and maps. It was first presented to the board of education in an executive session so that all members would have the time and opportunity to become acquainted with the facts, discuss the conclusions, and determine points of agreement or disagreement.

The report was then presented formally at a regular session of the board, wide publicity having previously been given to the meeting. At the meeting, the board tentatively accepted the conclusions, and arranged for another meeting to which all citizens were invited. In the interim copies of the survey were placed with the newspapers, the public library, in all school offices, with the Chamber of Commerce, the College Club, and copies were circulated among various other organizations. The local papers ran, in six consecutive issues, summaries of the survey findings.

At the public hearing, attended by a representative group of citizens, the findings and conclusions were discussed from the floor. Dr. Linn led the discussion and explained certain of the charts and graphs which were thrown on the screen by means of an opaque projector.

The net result of this was widespread understanding of the survey as well as a keen interest in the facts assembled on the part of the town commissioners, real estate groups, the Chamber of Commerce, civic leaders, all of whom found something in the data which had value to them in analyzing the community.

The first tangible advance toward a building program resulting from the survey came in May, 1947, when, at a special election, the voters, by overwhelming majority, approved the purchase at a probable cost of $57,500, of two tracts of approximately 11 acres each to be used for new building construction.

The board of education will soon select an architect who will be instructed to draw plans for two new buildings, one an elementary school to accommodate some 600 pupils, the other a combination junior high school and elementary school to accommodate 700 pupils, the latter plans to be drawn so that the school can be built a unit at a time if that seems desirable.

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PUBLIC SCHOOL POOLS

(Concluded from page 41)

In addition to the questions of general desirability and feasibility, the 27 city superintendents were also asked (1) whether their junior and senior high schools were equipped with swimming pools at the present time, and, (2) if they contemplated the construction of indoor pools in their future schools?

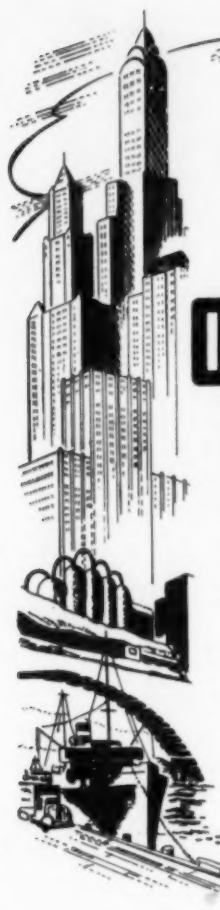
Present Facilities and Future Plans

Four superintendents said they now had pools in their senior high schools; 22 did not. Only one school system head reported a swimming pool in a junior high school.

In their contemplated secondary plants only 3 superintendents among those questioned plan to include swimming pools; 20 definitely do not; 2 superintendents expect to have them in the junior high school blueprints. The rest don't.

Summary

A majority of the Southeastern city superintendents and public health officers polled seem to be agreed that swimming pools in the junior and senior high schools of tomorrow would be desirable if, (1) adequate funds with which to build and maintain them are available, and, (2) they are properly supervised and operated sanitarily. But the lack of sufficient funds and the urgent need for other facilities will apparently preclude any widespread construction of indoor swimming pools in the Southeast for many, many years to come.



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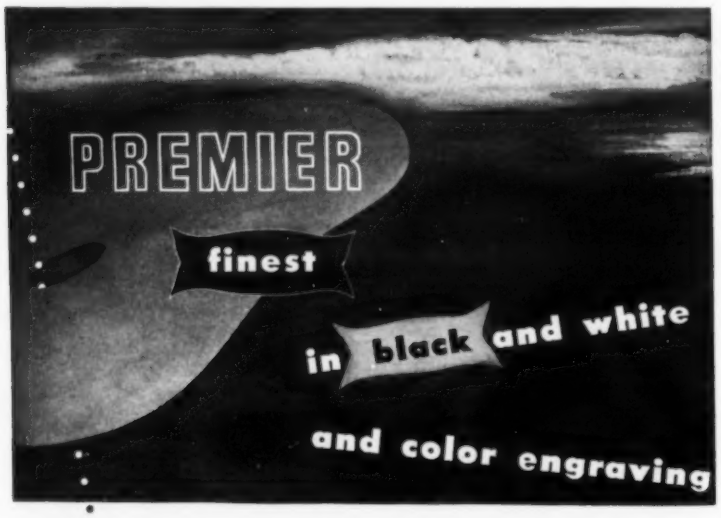

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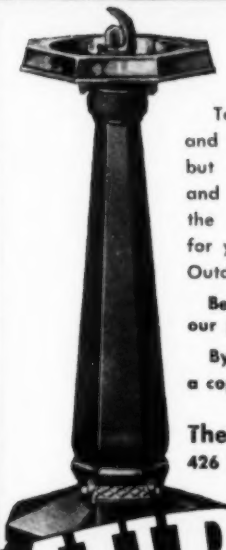

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New Supplies and Equipment

VESTAL ISSUES FLOOR BOOKLET

A specification booklet for architects and engineers interested in knowing more about better floor protection and maintenance has been announced by the Vestal Company. The booklet contains information about terrazzo, asphalt tile, linoleum, rubber, concrete, and wood floors.

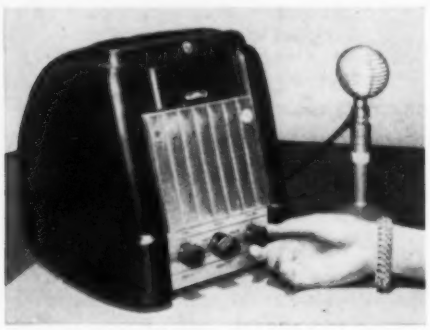
Vestal, Inc., 4963 Manchester St., St. Louis 10, Mo.

For brief reference use ASBJ—101.

RCA WIRE RECORDER

A lightweight, portable wire recorder, with a simple "plug-in" loading cartridge which completely eliminates the complicated handling of wire, has been announced by the RCA Victor Division of the Radio Corporation of America.

The new wire recorder makes available to educators a quick and easy procedure for recording and reproducing sound, both for classroom work and for self-instruction. It is especially useful in teaching rehearsal of public speaking,



RCA Wire Recorder

speech-correction methods, foreign languages, and dramatic art. It can also be used in radio programs for classroom study and review. Compactly housed in a black and silver plastic cabinet, the recorder operates from any ordinary light socket.

RCA Victor Division, Radio Corporation of America, Camden, N. J.

For brief reference use ASBJ—102.

HYLOPLATE LIGHTER CHALKBOARD

Weber Costello Company has announced Hyloplate Lite Site, a lighter chalkboard which makes classrooms lighter and brighter. Lite Site incorporates all the time-tested qualities of famous

A "Light Colored" Chalkboard

Old Reliable Hyloplate. It comes in 20 colors, ranging from dark to white, buff, green, blue, rose, and yellow.

The firm has prepared master specifications which can be used in the installation of Hyloplate Lite Site.

Weber Costello Company, Chicago Heights, Ill.

For brief reference use ASBJ—103.

EBF ANNOUNCES NEW FILMS

A new series of teaching slide films on "Animal Friends" has been announced by Encyclopedia Britannica Films, Inc., Chicago. The new series of eight film strips each containing sixty or more pictures has been adapted from well-known motion pictures produced earlier by EBF. The slide films designed to be used with sound films, will correlate with science and social studies in the middle grades, and with language arts classes in the primary grades. A fourth series, now in preparation, will include eight films to be known as the Human Body Series.

Encyclopedia Britannica Films, Inc., 20 North Wacker Drive, Chicago 6, Ill.

For brief reference use ASBJ—104.

NEW FILM ON MAKING BOOKS

A new 16mm. sound film, "Making Books," has been announced by Encyclopedia Britannica Films, Inc., Chicago. The new film while designed for primary children, may also be used in the middle grades and in the high school levels where a knowledge of books is needed. It tells the complete story of the mass production of books and the human talent needed for book production.

Encyclopedia Britannica Films, Inc., 20 North Wacker Drive, Chicago 6, Ill.

For brief reference use ASBJ—105.

NEW SOUND FILM ON WOOL

A new one-reel 16mm. sound film on wool has been issued by Encyclopedia Britannica Films, Inc., Chicago. The film shows scenes on knitting and sweater making and is suitable for primary and middle grade school children. It may also be used in classes in social studies, geography, and language arts.

Encyclopedia Britannica Films, Inc., 20 North Wacker Drive, Chicago 6, Ill.

For brief reference use ASBJ—106.

WESTINGHOUSE ISSUES TEACHING AIDS

Westinghouse Electric Corporation has announced its new catalog of teaching aids, which includes a group of illustrated booklets on varied science subjects, prepared especially for junior and senior high school students. The booklets are intended for science, home economics, vocational, agriculture, industrial arts, and general assembly. Each booklet is a self-contained story, supplemented by a page of experiments which the student can perform. They are available, free of charge, in quantities for members of classes.

Westinghouse Electric Corporation, 306 Fourth Ave., Pittsburgh 30, Pa.

For brief reference use ASBJ—107.

THERMOPANE INSULATING GLASS

The trend to larger window areas and solar type construction is being speeded up in the building field as a result of the production of Thermopane, a new insulating type window, composed of two panes of glass, separated by hermetically sealed dry air spaces. This new glass makes it possible to save up to 50 per cent of the fuel used to heat glass areas and is particularly useful at this time when there is a critical shortage of fuel.

The Libbey-Owens-Ford Glass Company, of Toledo, manufacturers of Thermopane glass, are maintaining a stock of standard sizes of the glass and are equipped to make prompt deliveries. Sizes have been standardized and more than 60 sizes are now in production.

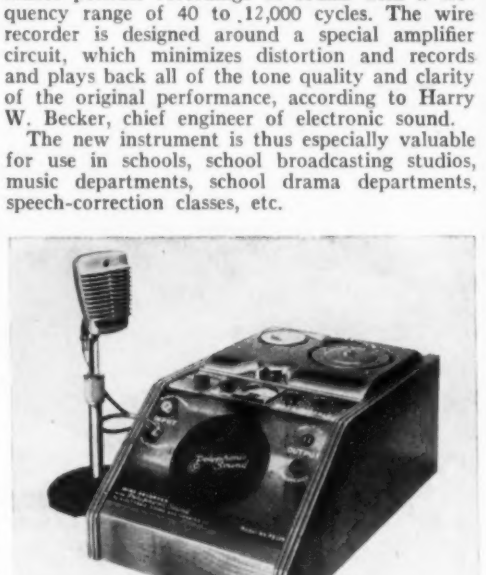
Libbey-Owens-Ford Glass Co., Toledo, Ohio.

For brief reference use ASBJ—108.

HIGH FIDELITY WIRE RECORDING

A wire recorder unit with *"polyphonic sound,"* establishing high fidelity performance on wire, has been announced by the Electronic Sound Engineering Company, Chicago. Designed for use where quality of sound is important, the unit makes possible recordings of sound with a frequency range of 40 to 12,000 cycles. The wire recorder is designed around a special amplifier circuit, which minimizes distortion and records and plays back all of the tone quality and clarity of the original performance, according to Harry W. Becker, chief engineer of electronic sound.

The new instrument is thus especially valuable for use in schools, school broadcasting studios, music departments, school drama departments, speech-correction classes, etc.



Polyphonic Sound Wire Recorder

The speaker features a special diaphragm for the reproduction of high frequencies. A 15-in. dual channel auxiliary speaker is available and can be connected with a jack on the front panel. The panel is an input arrangement for direct connection with a radio or record player, as well as for a low-level input for microphone use. The unit is a table model, of birch in natural finish, or walnut. The price is $350.

Electronic Sound Engineering Co., 4344 W. Armitage Ave., Chicago, Ill.

For brief reference use ASBJ—109.

MARSHALLTOWN SICK-LEAVE POLICY

The board of education at Marshalltown, Iowa, has adopted a new sick leave policy for teachers for 1947–48, which allows each faculty member ten days' sick leave in any school year. The sick leave is cumulative up to twenty days for teachers who have been members of the staff from one to five years. For those who remain from six to ten years, the sick leave will be allowed to cumulate to thirty days, and for those on the staff 11 years or longer it will be allowed to cumulate to a maximum of forty days. The days refer to actual teaching days, and the maximum when reached amounts to school months which a teacher would be allowed for absence and for which she would receive full compensation.

TEETH IN THE DENTAL PROGRAM

The board of education of Augusta, Kans., has attempted to carry out a practical school dental program through the co-operation of students and parents and the adoption of a simple rule. A year ago, the board passed a rule requiring all junior and senior high school students to have cavities in teeth filled in order to be eligible for the year's credit in physical education. This rule includes the repair of those teeth which can be saved by filling. The co-operation of students and parents in carrying out this forward move was almost 100 per cent. Not a single complaint was heard and hundreds of teeth were saved. In 1947 the rule was extended to include all boys and girls in both the junior and senior high schools. Some of the grade teachers have taken the responsibility seriously and have secured good responses from children and parents.

After the Meeting

Why I Teach

Because I would be young in soul and mind
Tho years must pass and age my life constrain
And I have found no way to lag behind
The fleeting years, save by the magic chain
That binds me, youthful, to the youth I love,
I teach.

Because I would be wise, and wisdom find
From millions gone before whose torch I pass,
Still burning bright to light the paths that wind
So steep and rugged, for each lad and lass
Slow climbing to the unrevealed above,
I teach.

Because in passing on the living flame,
That ever brighter burns the ages through,
I have done service that is worth the name
Can I but say "The flame of knowledge grew
A little brighter in the hands I taught,"
I teach.

— Louis Burton Woodward

Intercultural Education — an Incident

During the September, 1947, mass truancy in Gary, Ind., during which white children refused to attend the Emerson School because Negroes had been admitted, Mr. James H. Tipton reports that a little white boy came to the principal's office at the end of the day, saying, "I wanted to tell you that I won't be at school tomorrow. I will not go to school with Negroes."

"Why, Jimmy," asked the principal, "don't you live in the same building with three Negro families? Aren't they friends of yours?"

"Oh, yes," said Jimmy, "but that is different."

Just then a small colored boy poked his head into the door saying, "Aren't you ready to go home, Jimmy? I've been waiting a long time."

Answered Jimmy, "In just a minute, Eddie. You wait for me downstairs. I have got to finish talking with the principal."

A few minutes later, Jimmy and Eddie walked home together as good friends.

The Difference!

A stranger mistook an insane asylum for a college. Realizing his mistake he said to a guard:

"I suppose after all there isn't much difference between them."

"Oh yes, there is," replied the guard. "In this place you've got to show improvement before you can get out."

"Stand up the boy to whose airline
That one belongs." — **Punch**

Advertisers Products and Services

Advertisers in this index are given a code number in addition to the page number on which the advertisement appears. Refer to the advertisement for product or services available. Write direct to advertiser or use the coupon in requesting information from a number of advertisers.

Code No.		Page No.
10	A & M Furniture Exchange	80
11	Acme Shear Company, The	77
12	American Blower Corporation	6
13	American Crayon Company	77
14	American Type Founders Sales Corp.	68
15	Ampro Corporation, The	71
16	Automatic Pencil Sharpener Co.	81
17	Bay West Paper Company	78
18	Bruce Publishing Company	76
19	Brulin & Company, Inc.	80
110	Burroughs Adding Machine Co.	63
111	Chicago Hardware Foundry Co.	74
112	Churchill Mfg. Company	84
113	Clarin Manufacturing Co.	84
114	Crane Company	11
115	Des Moines Bookbindery Co.	80
116	Detroit Steel Products Co.	7
117	Dick Company, A. B.	5
118	Dictaphone Corp.	61
119	Dudley Lock Corporation	90
120	Ford Motor Company	3rd cover
121	Graubard's, Inc.	76
122	Hamilton Manufacturing Co.	2 & 3
123	Heywood-Wakefield Co.	59
124	Hillyard Sales Companies	66
125	Holden Patent Book Cover Co.	64
126	Holmes Projector Company	76
127	Holt Hardwood Company	69
128	Huntington Laboratories, Inc.	79
129	International Business Mach. Corp.	65
130	Kewanee Boiler Corp.	14
131	Kewaunee Mfg. Company	81
132	Macmillan Co., The	62
133	Mack Manufacturing Corp.	67
134	Murdock Mfg. & Supply Co.	81
135	Nesbitt, Inc., John J.	4th cover
136	Owens-Illinois Glass Company	13
137	Peabody Company, The	4
138	Peterson & Co., Leonard	4
139	Pittsburgh Corning Corp.	15
140	Pittsburgh-Des Moines Steel Company	9
141	Premier Engraving Company	80
142	Professional Directory	10
143	RCA Victor Div. Radio Corp. of America	16
144	Reinhold Publishing Corp.	75
145	Richards-Wilcox Mfg. Co.	73
146	Rundle-Spence Mfg. Company	76
147	Schermerhorn Teachers Agency	10
148	Sexton & Company, Inc., John	18
149	Sheldon & Company, E. H.	70
150	Skilsaw, Inc.	81
151	Sloan Valve Company	1
152	Speakman Company	8
153	Taylor Company, Halsey W.	84
154	Trane Company	12
155	Vestal Chemical Company	72
156	Victor Animatograph Corp.	2nd cover & 75
157	Walrus Mfg. Co.	75
158	Wayne Iron Works	4

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THE AMERICAN SCHOOL BOARD JOURNAL
540 North Milwaukee St., Milwaukee 1, Wis.

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148	149	150	151	152	153	154	155	156	157	158	

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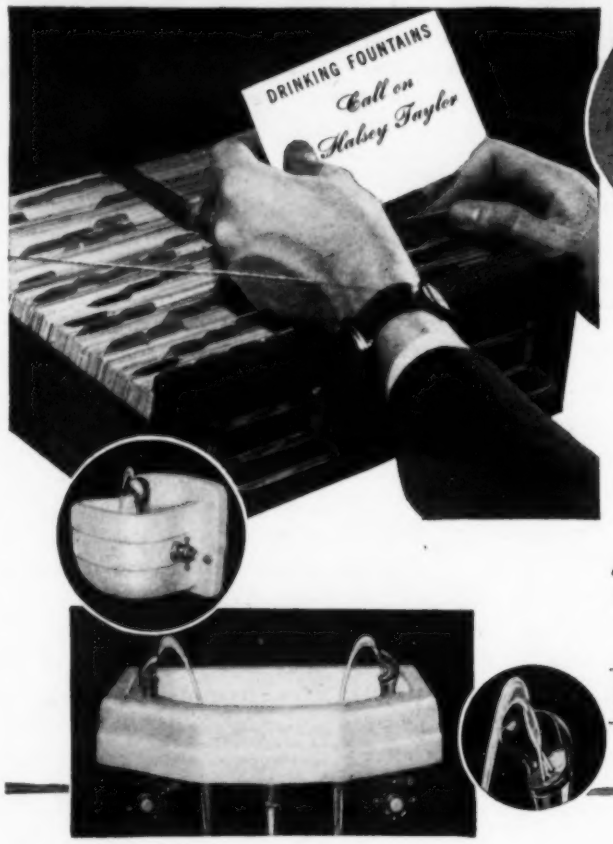

They're the fountains to specify... for '48

YEAR after year Halsey Taylor Drinking Fountains are the preferred specification of architects and school authorities who know and appreciate their unique advantages.

Modern in design, their distinctive features spell convenience and sanitation, and they are available in a wide variety of types. Write for latest literature.

The Halsey W. Taylor Co., Warren, O.

HALSEY TAYLOR
—Drinking Fountains—

S-1

Clarin super-built
STEEL FOLDING CHAIRS

No. 2317-L

The superior craftsmanship of Clarin chairs explains their preference all over America. Exceedingly restful to sit on — open and close so easily and quietly — strongly re-enforced for extra strength — durably finished — store in small space. Write today indicating your requirements.

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CHICAGO 44, ILLINOIS

There are more *Clarin* steel folding chairs in institutional service than any other make

FOR EFFECTIVE *Sanitation*

CHURCHILL'S SAFE-T-CIDE

A new disinfectant, powerfully effective. Does not lose germicidal strength with age or exposure to air. As a result, it is exceptionally adaptable for use in shower rooms, locker rooms, swimming pools, foot tubs, toilets, etc. A remarkable preventative and treatment for athlete's foot, too. In barrels, half barrels, 15, 5, and 1 gal. drums.

FOOT BATH TUBS

This square foot bath tub of heavy plastic is strong, sturdy, and non-tippable. Ideal for shower rooms, locker rooms. Size 15" x 20" x 5", weight 9 lbs., capacity 6 gallons. Lighter oval-shaped tubs also available . . . size 13" x 18" x 4¾", weight 3 lbs., capacity 4½ gallons. Have hundreds of uses.

Call Churchill distributor or representative, or write

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